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UNIVERSITY
OF
CALIFORNIA

VOL. XLI. JULY 15, 1913, NO. 14.

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VOL. XLI.

JULY 15, 1913

NO. 14

Editorial

MORE BEES KILLED BY SPRAYING WHILE IN BLOOM.

THE following from a correspondent is one of many more reports that we have received showing the injurious effect upon bees of trees sprayed when in bloom. While the quotation here given does not state this fact exactly, yet we know the bees would not have been killed unless the trees were sprayed while in blossom. Here is the item:

Bees have been killed by the peck in this locality by spraying with arsenate of lead, and it looks now as if little or no comb honey will be secured this season.

C. E. PALMER.

Ransomville, N. Y., June 13.

CONNECTICUT PASSES A FOUL-BROOD LAW.

WE have just received a copy of the foul-brood law recently enacted in Connecticut. It is an excellent law, and it seems to be very carefully worded throughout. However, it limits the amount that may be expended for carrying the act into effect to \$750. Of course, Connecticut is a small State; but to do effective work the appropriation certainly ought to have been larger. But doubtless the beekeepers of Connecticut are very happy to secure as much as they did, especially as the general provisions of the law are excellent. The way is now open to secure a larger appropriation later if necessary.

THE CANADIAN BEE JOURNAL ABSORBED BY THE CANADIAN HORTICULTURIST.

IN June the *Canadian Bee Journal* and *Canadian Horticulturist* were consolidated, or, rather, the *Canadian Horticulturist* purchased the *Canadian Bee Journal*, and it now has a large department entitled "The Beekeeper." This department in the first issue since consolidation is well illustrated, and the matter carefully selected. Doubtless the *Canadian Horticulturist* recognizes the intimate relation between the two lines of industry, and the combination is most natural. As the *Canadian Horticulturist* is an old and well-established journal, it is doubtless true that the beekeeping interests on the other side of the line will be taken

care of as well as or better than was the case when the publication was devoted wholly to bees. GLEANINGS offers its congratulations and best wishes.

DEATH OF WILLIAM M'EVROY.

JUST as we go to press, announcement has reached us of the death of our old friend Wm. McEvoy, of Woodburn, Ont., Canada. Mr. McEvoy was one of the pioneers in the treatment of foul brood; indeed, he was the author of what is known as the McEvoy treatment of foul brood. This did not differ materially from the Quinby or the Jones methods except that he gave two shakings on two sets of foundation, and put the bees back in their hive.

Wm. McEvoy was a prominent figure in Canadian bee-dom. He was for years its only foul-brood inspector.

"Mac," as he was familiarly called, was a "hail fellow well met." The position of any foul-brood inspector is sometimes embarrassing in that he sometimes has to deal with people who are inclined to give him a sort of shotgun reception. "Mac's ever ready Irish blarney" (in the language of J. B. Hall) was at all times equal to the occasion. He always knew how to handle his man, and before leaving he would get his good will.

Mr. McEvoy was a large producer of honey, a good beekeeper, and his death will be regretted by his many friends.

It used to be said that a convention in Canada would not be quite complete without J. B. Hall, of Woodstock, Ontario, or Mr. McEvoy, of Woodburn. Both of them had a happy faculty for enlivening discussions and for throwing in practical suggestions. Both together made a team. But both have gone to the land beyond.

In later years the problem of taking care of foul brood in Ontario became too great for one man to handle. Our friend Mac believed he could handle it all; but in that he was mistaken, for the disease was surely getting the better of him. In later years it was discovered that even five or six men could hardly cope with it. During the last

four or five years Canada has had, we believe, five or six inspectors.

Our old friend took it to heart when the beekeepers of Ontario decided that they needed six inspectors in order that the whole territory might be thoroughly and completely covered. In the last year or so he dropped out of the inspection work, and devoted his time wholly to the production of honey. Peace to his memory.

HONEY PRODUCTION AT MEDINA.

THE past few days have been very busy ones at the Medina apiaries. The 1000-lb. automobile truck has been kept busy going to the yards and bringing in honey and bees. A part of one day and a part of another we took off 9000 lbs. of extracted from a part of the home yard and one out-yard, and we have an extracing to take at both yards yet.

THE STEAM UNCAPPING-KNIFE.

We have been trying out the steam uncapping-knife and the ordinary knives dipped in hot water. When there is a large amount of uncapping to do, especially if the capping extends clear over both surfaces of the comb, and the honey is thick, the steam-heated knife is far ahead of the ordinary knife dipped in hot water. But when the cappings cover only a part of the surface, the hot-water-heated knife does practically as well as the steam-heated knife, and avoids the inconvenience of the tubing reaching from the boiler to the knife.

THE CANADIAN UNCAPPING-KNIFE.

We have also been testing out the Canadian form of knife as compared with the Bingham. At first the boys were inclined to favor the former; but after a more thorough testing they decided that the Bingham shape is the better, as it takes less pull on the wrist to shove the Bingham through the cappings, for the reason there is less beveled edge to cause friction on the comb.

THE PETERSON CAPPING-MELTER.

We have been using with considerable satisfaction the Peterson capping-melter; and when the big power extractor was throwing out the honey faster than one man could uncap, another man was put on the other side of the machine. The honey and wax flow together into a wax-separator; and the honey from such separator, so far as we can discover, is equal in flavor to that taken with the regular honey-extractor. At the end of the day's work there are no cappings lying around, for the reason that they have all been melted and the honey separated out. More or less dirt from old combs will run in with the wax. The big cake of wax from the separator is taken out, re-

melted, clarified, and recaked before it is fit for the market.

THE HONEY-PUMP AND THE GRAVITY SETTLING TANK.

The honey-pump continues to do good work. It carries the honey to any point desired into an elevated gravity tank. All dirt, skimmings, dead bees, etc., rise to the surface. The honey is then drawn off into square cans from the bottom of the tank. We have no hesitation in deciding for the gravity scheme for clarifying honey rather than fuss with honeystainers that are continually clogging up.

ELECTRIC ALARM FOR FILLING SQUARE CANS.

We have been using an automatic electric alarm to give notice when the 60-lb. cans are full. The whole thing can be made in about an hour, and is so simple that any one can make it. A full description with illustrations will appear later. Of course, the idea is not new; but the manner in which we have applied the principle may be new to some.

THE AUTOMOBILE TRUCK FOR BEEYARD WORK.

The automobile truck (the Commerce) is doing splendid service. It has never given us any trouble except once when we got stuck in a mudhole through the inexcusable negligence of certain township trustees who allowed the place in question to become impassable for even horse-drawn vehicles. Otherwise our track has responded promptly through mud and rain, day in and day out. It has enabled one crew of three men to take care of five queen-rearing outyards, including the one home yard. Our foreman has set his stake at 100 lbs. per colony, spring count. If the drouth had not set in so severely he would have reached his goal, and he may do it as it is. Nor has the basswood apiary, in charge of our Mr. Pritchard and his son, been idle. This yard will turn out about 3000 queens besides its full quota of honey.

CRANBERRY-GROWING ON CAPE COD, MASS.; A REMARKABLE INSTANCE SHOWING THE VALUE OF BEES AS POLLINATORS.

JUST before we started for the Massachusetts convention referred to in our July 1st issue, p. 434, we received a letter from the President of the United Cape Cod Cranberry Co., Mr. Marcus L. Urann, at South Hanson, near Boston, inviting us to look over their cranberry properties where they are conducting some experiments with bees in pollinating the cranberry-blossoms. After the convention we went on to Boston, then on to South Hanson, where we met Mr. Urann.

The United Cape Cod Cranberry Co. has

discovered that the yield per acre could be enormously increased by having bees within convenient access. Formerly wild bees in the locality have been sufficient to do the work of pollination for the cranberries; but the experimental department of the United Company believed that there was not at all times a proper pollination, and in looking about for ways to improve and increase the crop, it was determined to increase the number of bees. The company began to buy up bees and put them at the various properties, when, presto! the yield came up. The company has now something like 700 acres of cranberries; and in the near future it will increase this acreage to 2000. It is in no way interested in the production of honey only as the honey itself may be used as a means for paying for the bees, and perhaps leave a comfortable margin besides. What the company wants is cranberries, honey being only a secondary consideration. So gratifying have been the results by increasing the number of bees that Mr. Urann has employed a beekeeper to make rapid increase so that he may be able to take care of their various properties by having the requisite number of bees at each bog where the cranberries are grown.

The problem that Mr. Urann would naturally like to solve is, just how many colonies of bees are needed for a given acreage; and when he put that proposition to us we admitted that we might be wild in our guess.

One test was, however, somewhat significant. There was one bog at Halifax that had 126 acres of cranberries. On one side of this were some three or four colonies last year. It was very evident that this number was inadequate to cover the entire field. It was very significant that the yield per acre of berries was in direct proportion to the proximity of such acreage to the bees. The yield was heaviest close to the hives, and was thinner and thinner as the distance from the hives increased. The showing was so remarkable in this and other fields that Mr. Urann proposes to increase materially their investment in bees another year.

In a small way he has conducted some experiments where he screened a small area of cranberries away from the bees, and right beside it he established a small plot that the bees could visit. There was a "deadly parallel" between the two. The screened portion had very little fruit, while that free to the visitation of the bees had a large yield. We will not attempt to give the actual figures at this time. This whole proposition is so interesting that we are now laying our plans to make a second visit to see those wonderful establishments

where the bees are proving to be such benefactors, not in honey production, but in the enormous increase of the yield of berries per acre.

In our travels over the United States we never saw a situation that demonstrated more clearly the value of bees as pollinators than in the cranberry-fields. Every cranberry-grower is now making plans to go into the bee business, not because he expects to produce honey, but because he knows by putting in bees he will increase his yield of cranberries per acre.

We might explain that a cranberry-bog is nothing more nor less than a piece of swamp land carefully and accurately graded after all trees and other vegetation have been removed. The cranberry-plants spread and grow like strawberry-vines, and, like the strawberry, they must have bees.

At some future time we hope to present some photos that will show some of these remarkable fields where the bees are earning more money for their owners than probably any other bees devoted to the production of honey anywhere in the United States.

HONEY-CROP CONDITIONS.

REPORTS from supply dealers and beekeepers generally go to show that 1913 will go down in history as a great clover year. There has been a tremendous yield in many localities; but in others the drouth has been so severe that the crop has been cut short or cut off entirely. But the yield has been so heavy in favored localities that white-clover honey will be very much in evidence in the markets. It is of very fine quality, for the reason that weather conditions were ideal for ripening. In general, reports indicate that this has been an off year for basswood. Late reports from some parts of Ontario, Canada, indicate a big yield from clover. In some parts the yield was cut down by early frosts.

Had it not been for the drouth setting in, in many localities, the honey markets of the East, at least, would take a tumble. As it is, prices will probably rule easier than last year. However, it is rather early yet to make a definite statement as to what the actual clover crop will be. Reports have not come in very numerously as yet; but here are a few that will give some idea of what the season has been. It should be noticed that the reports up to June 28, from some localities, are discouraging on account of drouth. But in many of those drouth-stricken places heavy soaking rains have since come, with the result that honey began to come. This was particularly the case in New York. Well, here are a few of

the reports from the clover districts, and one or two from the West:

The honey crop is almost a failure in the black belt of Alabama. It will be the shortest crop we have had since 1907. We have abundant clover, but the weather is so dry it does not yield much honey. Montgomery, Ala. J. M. CUTTS.

The honey crop in this section will be almost a total failure this year.

Watsonville, Cal., June 27. C. W. ARNETT.

I never saw so much white clover, even in Ohio. Ingleside, Ill., June 25. D. B. STANFORTH.

Prospects are good for honey; plenty of white clover.

Freeport, Ill., July 1. A. E. LONG.

The honey-flow here unusually good. White clover is abundant.

Chesterfield, Ind., June 26. J. H. COLLINS.

We expected a bumper crop of white-clover honey, but drouth knocked us out. No rain for three weeks caused white clover to dry up.

Vincennes, Ind., June 23. WM. F. LUDWIG.

Bees are breaking all records so far this year—the best honey-flow in 30 years up to July 5. I have taken off over 100 lbs. per colony of comb and extracted honey, and it is the finest I have ever produced.

Chariton, Iowa, July 5. L. RIEBEL.

Bees have done better than usual this season; also made more trouble by swarming. Basswood will bloom in a few days, but the bloom will not equal last year. The two months' drouth was ended the past few days with showers, making 2.25 inches of rain.

Payson, Ill., June 26. DANIEL E. ROBBINS.

Our June flow is at least 25 per cent above the average. The yield from white and sweet clover is very good. Basswood is blooming sparingly.

North Tokepa, Kan., June 24. A. V. SMALL.

Bees are strong, and doing excellent work. Clover is yielding an abundance of nectar; good crop expected.

Brooksville, Ky., June 26. H. C. LEE.

Honey yield is a record breaker. White-clover honey had to be removed by June 26 to make room for basswood. Basswood rich in bloom and honey; bees having nine more days to work. It will be in all a double crop or better. After the rains white clover is very thick again.

FRANCIS JAGER.

St. Bonifacius, Minn., July 7.

Our honey crop is very short in this part of the country on account of dry weather.

Strafford, Mo., June 30. L. A. WEBSTER.

The prospects are fine for a good crop of honey in Nevada this year.

Smith, Nev., July 2. C. M. CARTER.

There has been very little honey gathered from clover to date. Fruit bloom was very light, and the prospects for a good crop of honey this year are discouraging. We have had a dry cold June.

Pittsfield, N. H., June 27. HERBERT C. TOWLE.

Crop of clover honey a failure here. I have run four yards of bees, and have not had a swarm so far this season. Too dry.

Parksville, N. Y., July 8. A. W. SMITH.

Reports we are receiving say, "Hives are over-running with honey." The weather is still good for honey, and beekeepers are mostly jubilant. I hope it will continue so till August 1. Then look out for a bumper crop.

F. A. SALISBURY.

Syracuse, N. Y., July 1.

Clover is a failure—worst in 20 years. Basswood is ruined by forest worms, etc., except scattered spots.

R. G. SMITH.

Ticonderoga, N. Y., June 25.

At yesterday's meeting the New Jersey Beekeepers' Association reports indicate general conditions as unsatisfactory—from half a crop to a total failure, attributed mostly to alternating heat and cold, especially cold nights, which seem to check nectar secretion. White clover is in great abundance, but little or no "juice" in it. This condition seems general.

Hoboken, N. J., June 26. C. D. CHENEY.

This has been about the best clover flow we ever had; but it is practically over, as the buds on the basswood were killed by the cold spring. We shall get no basswood honey.

Hastings, Ontario, July 5. J. F. ORISHAW.

The spring freezes of April 20 and May 6 paralyzed honey production, and nearly ended the bee business with me; yet the clovers have finally turned the scales, and I am now selling honey again. My production will be below normal, and will likely not exceed 1000 lbs. of comb honey.

Bladen, O., July 7. CHAS. H. CARGO.

There is the largest crop of white clover there has been for many years.

Bulger, Pa., June 30. M. M. PHEEN.

I report about half a crop, all alsike and white clover. Locust, not any. Red clover, hardly any here.

Ronks, Pa., June 25. D. F. ZOOK.

Bees are booming; clover bloom is the finest in years; supers filling up rapidly; very little swarming.

Wilksburg, Pa., June 25. W. D. KEYES.

A severe drouth will prevent our getting a large crop of honey.

Middlebury, Vt., June 28. J. E. CRANE.

The clover looks well here, and the bees that had stimulative feeding enough to build up strong are doing well, and there will be a good crop of honey here.

Albany, Vt., June 27. J. M. CARTER.

Bees are not doing what they ought to. There is the most clover in blossom at present that there has been since 1893. Weather for a few days has been clear and hot. A good swarm on scales, with an empty extracting-super, gained 4 lbs. on the 27th; 3¾ the 28th.

Stockbridge, Wis., June 29. ANDREW STEVENS.

There have been almost no reports from the irrigated alfalfa districts. However, there is nothing to indicate that the season has been below normal. In California the season has been reported as a failure; but the *Western Beekeeper* for July 1 has this from A. S. Wagner, of Imperial Co.:

In GLEANINGS IN BEE CULTURE, page 327, this notice appeared: "California honey crop a failure." I consider this misleading. This fact should be stated, "that certain crops were a failure." It would seem from that article that orange and sage honey were the only crops produced. Hereafter the alfalfa honey will be quite a factor in the honey shipped from this State. I am not familiar with the central and northern portion of the State; but Imperial County alone should normally produce from thirty to forty carloads of honey per year. This is not intended for a booster, but we feel that the public, and the buyers especially, are entitled to be informed of this fact.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, p. 402, while you're about it you may as well have wire cloth with mesh just small enough so that a bee can't get through. That would be a shade less than 1-6, which would obstruct the vision about three-fourths as much as $\frac{1}{8}$ mesh.

JUNE 30 the average number of sections over each colony was 103.04, and 15.36 had already been taken off. Of course, part of those on the hives—perhaps one-fourth—were empty sections; but even so, no such story could ever be told in June before. Certainly I never knew such a flow before. One factor in the case is the alsike, which is increasing wonderfully, springing up on the roadside and other places where one would suppose no seed could have fallen.

POLLEN in sections is spoken of as a matter of location, p. 388. Isn't it rather a matter of shallow brood-combs? [Yes, the depth of the brood-chamber will have a great deal to do with the absence or presence of pollen in the supers; but is it not true that there are other factors? For example, if there are no outside brood-combs in the brood-nest in which pollen may be stored, and the rest of the brood-nest filled with brood and honey, the bees are more inclined to store pollen in the sections. They must put it somewhere. The advice has often been given to see that there be empty comb in the brood-nest next to the hive walls to catch pollen. Some of the users of shallow brood-chambers have stated that this is an absolute remedy.—ED.]

ARTHUR C. MILLER, what you going to be up to next? The cheek it must take to tell us, p. 370, that not only may a queen be successfully introduced within an hour or so after the removal of a laying queen, but that virgins or laying workers are no hindrance. Well, there ought to be enough try it before the summer is over to know how it works. But, say; you talk about bees tolerating a plurality of virgins. You hardly mean that more than one virgin will be out of the cells, do you? Any way, it's not a question of the bees tolerating virgins, is it? Isn't it the virgins that won't tolerate one another? I suppose in one sense it might be said the bees tolerate a plurality of virgins in their cells when they stand guard over them to defend them against their murderous elder sister.

A SUNDAY-SCHOOL field-worker of Illinois surprised me by saying he thought cigarettes worse than whisky. I'm slowly coming to believe he's right. I'm pretty sure

little boys in Marengo are in greater danger of becoming users of cigarettes than users of whisky or beer. Even if the cigarette does only half as much harm as drink to its victim, if it catches three times as many victims it is the greater curse. And I'm not sure that the cigarette is at all behind drink in destroying the physical and moral stamina of a boy. I don't know how it is elsewhere; but here the cigarette seems to get hold of boys at an earlier age than drink. Somehow boys can hide cigarettes from their parents longer than drink. If the cigarette curse increases in the next ten years as it has in the past ten, we're going to be a nation of imbeciles.

AN unsupplied want is a set of grader's balances for grading honey. We have scales galore for getting the weight of honey, but we don't want to know how much a given section weighs. Take the Colorado rules. There are just two questions to which the grader may want an answer: "Does that section weigh 'less than 13½ ounces'?" or, "Does it weigh 'less than 12 ounces'?" The exact weight he cares nothing about. So he wants two balances, one having on one side of it a weight of 13½ ounces, and the other having a weight of 12 ounces. Then if the section goes down it goes, and if it doesn't go down it doesn't go. And these two balances should cost a good deal less than any single weighing machine. H. H. Root, here's a chance for your inventive genius. [A pair of balances might be made to take two different weights, as you indicate; but they would cost more than regular scales; and is it not true that it is more practicable to make three or more gradings as to weight if there is any difference?—ED.]

"BEES can build comb in confinement, but it is a very unusual procedure," p. 388. I wonder if it is. The first package of bees I got from Medina last year had built about two square inches of comb. [Perhaps we put it too strongly. If so, we are subject to correction. Some 25 years ago Mr. Paul L. Viallon, of Bayou Goula, La., who was then quite active with bees, reported that it was with difficulty that bees could be made to build comb in confinement; but when they could fly out every day they would build it much more readily and with less stores. He was testing out the truth of the oft-repeated statement that it takes 20 lbs. of honey to make 1 lb. of wax. He found that it would take about that amount if the bees were confined; but if they had

their liberty it would take a great deal less. His figures were between six and seven pounds. Just how he could take account of the nectar brought in and converted into wax, we do not now recall. Perhaps some one has definite figures that will bear on this question.—Ed.]

THE *Vindicator*, a Prohibition paper, has a "vision" of all the opponents of the liquor-traffic getting together as one body in the more or less "near future," based on the idea that the Anti-saloon League meditates constitutional prohibition for the whole country. It thinks that will necessitate separation from all parties not committed against the saloon, and that Anti-saloonists and Prohibitionists will unite as one party. That "vision" may or may not be an idle dream; but it seems unthinkable that the enemies of the saloon shall go on for ever making faces at each other in two separate camps. As a consistent Prohibitionist, lo! these many years, I'm ready to vote that, if the great body of Anti-saloonists can make good use of the machinery of the little Prohibition party, they can have it at a bargain; or if the Anti-saloonists organize a political party of their own, I vote to scrap the machinery of the Prohibition party, and crawl under the canvas to get into the tent of the new party.

JUNE 11 I saw something new to me. Bees were bunched on the front of No. 54 as if it might have recently swarmed and returned. My assistant opened the hive to look for the queen, leaning the super, which was very full of bees, against an adjoining hive. Happening near I saw the bees beginning to leave the super, not in the ordinary way, but pouring out like a swarm. I said, "The queen has gone up into the super, and that has induced the bees to swarm out of it." So I began to look on the ground for the clipped queen; but my assistant continued her search in the hive. Presently she said, "You needn't look any longer for the queen; here she is in the hive." Sure enough, there she was. The bees sailed around a while like any other swarm, and then returned, not to the super, but to the regular hive-entrance. All this while the bees in the hive were quiet. Now, what did it all mean? Had those bees in the super failed to swarm out with the bees in the hive and then decided to swarm on their own account afterward, or how was it? Don't tell me those bees were not swarming. There's a lot of things I don't know about bees; but I know a swarm when I see it is issuing, and I know that was a swarm. [There are some things about the causes that induce a swarm to light out that

we do not understand. Years ago we heard a zeep, zep, zeep, in front of the entrance. Presently the queen came out, and then with her the bees. At other times the bees apparently take the initiative and the queen follows. When this takes place, some sort of signal or commotion is needed to start things going. Apparently this signal, or whatever it was, was given in that super, and apparently, too, that signal was not communicated to the brood-nest. This is a place where most of us will have to say, "I don't know." If any one does know what the exact procedure is that induces a swarm to hike out suddenly from the hive, let him tell us.—Ed.]

J. L. BYER, you ask, p. 439, whether in five weeks bees will scoop out enough of a winter nest to accommodate even one quarter of the bees. I don't know. I doubt if they will. Yet even that small space is enough for that editor to claim that they have a brood-nest. But let me say something that I do know. I know that empty cells—in other words a brood-nest—are not needed for all the bees. In winter I see a big cluster of bees hanging below the bottom-bars in some of my colonies; and the bigger the cluster the better it looks to me. Below the bottom-bars is surely outside the brood-nest. Now if those bees—possibly a third or more of the colony—can winter all right outside of any brood-nest, you ask that editor why it isn't possible for the rest of the colony to do the same thing. [Doctor, you are confusing the issue. You are talking about indoor wintering. It is perfectly practical for bees to cluster below the frames when they are in the cellar; but did you ever know of a case of their doing so when the hives were outdoors in cold weather? We have contended that a small winter nest below the honey is important in getting good results in outdoor wintering. This winter nest will gradually enlarge.

It is hard for us to believe that solid combs of honey—combs an inch thick, dividing up a cluster of bees when wintered outdoors, is an ideal condition. A colony that is wintering nicely outdoors has a winter nest. The bees are thickly crowded in the cells, and the only separation is the walls themselves and the midrib on the combs. Such a condition is natural, and allows the heat to be communicated from bee to bee, while solid slabs of honey an inch thick act as a non-conductor, breaking the cluster up into a series of thin slabs.

In talking about this winter nest, do not confuse outdoor and indoor wintering—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Bees have been greatly reduced in strength here in Vermont for lack of stores this spring. Consequently queens have stopped laying, or at least brood-rearing has been checked, so the force of workers for gathering the harvest of nectar when it comes will be small compared with what it would have been if there had been a good supply of honey in the hives, or if the weather had been such that the bees could have gathered any outside of their hives.

* * *

The spring here in northern New England was peculiar. It was warm in April, while May was very cold, and it continued cool up to June 15. Nearly all fruit except in favored places was ruined. The bees were strong May 1, but by June 1 about half were in a starving condition unless they had been fed. Very few yards have been fed as much as they needed, and so we have a shortage of brood. Where only a few colonies are in one yard they have done much better. This shows very conclusively that in the cool weather of spring bees go only a short distance from their hives, and a few will thrive where a large number will starve, while in warm summer weather a large number will do nearly as well as a few colonies in a yard.

* * *

I believe the most valuable article in the issue of GLEANINGS for March 15 is the editorial by A. I. Root under Our Homes. The subject is one that fathers and mothers find it difficult to talk to their children about, and yet a most important one. I believe those somewhat along in years can see the evils to individuals and society that come from sexual excesses far better than younger persons. As they look over the past, and remember the multitudes that have gone down to death from this cause, they are ready to cry out, "How shall the young be warned of their danger?" I have thought that, if some wise and kind-hearted physician of large experience could tell in a short treatise of a few pages the danger that comes to young people, depicting the sorrow and suffering in store for transgressors, no better work could be done for humanity.

* * *

AMOUNT OF SUGAR TO FEED TO SECURE A POUND OF SEALED STORES.

On p. 253, Apr. 15, Mr. Byer gives some facts on the value of sugar syrup compared with honey, and I can say that they are correct. I conducted quite extensive experiments a few years ago along this line in

order to find out just how far a pound of sugar would go; and, very much to my surprise, I found I could get only a pound of syrup sealed in the combs for each pound of sugar fed; and that a warm solution of two parts of sugar to one of water must be fed to secure that. If fed cold I got a small fraction of an ounce less; and when I fed half sugar and half water I got only $14\frac{3}{4}$ ounces, approximately, to each pound of sugar, sealed for winter stores.

* * *

DOES NECTAR FROM THE SAME PLANT VARY WITH THE SOIL?

Some years ago I scouted the idea of any given plant producing one quality on one kind of soil and another quality on a different soil. It begins to look as though my theories would not hold. I am told here in Florida that sugar-cane grown on rich low hummock land produces a very different syrup from that grown on high sandy land; also that the same varieties of oranges grown on low rich land are very different from those of the same variety grown on higher land. If the fruit is different, why should not the nectar of the flowers be changed to some extent also? It seems reasonable, and yet I am slow to believe the change is as great as some honey-dealers would have us believe.

* * *

VALUE OF INSECTS TO THE FLOWERS.

Mr. Geo. H. West gives us many interesting facts in regard to the value of insects in the fertilization of flowers. It is surprising to note the amount of information that has been brought to light since GLEANINGS took up the subject in a symposium some years ago. May I add one more fact along this line that I do not remember to have seen in print? Last winter, while waiting one morning I amused myself by examining some flowers of the sweet-scented jessamine that I had heard about from my childhood, but do not remember to have seen before. The first flower I examined carefully I found had a well-developed pistil, but no stamens in sight. This seemed queer, and so I looked for a mate and soon found another flower with well-developed stamens but no pistil in sight. Evidently insects must do their work or the flowers could not become fertile. I found on tearing the flowers apart that, where no pistil or stamens appeared, they were held back or underdeveloped only to mature a little later, and again to be cross-fertilized by insects.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

I am quoting the following from a letter just received from Mr. Geo. L. Emerson: "We certainly are having our share of hard knocks this year. The Governor did not sign our bill—so little rain, the frost, raise of freights on all bee commodities, to say nothing of tariff revision and consequent unsettled conditions. It takes a good deal to starve a beeman out, though, and I believe most of us will bob up after the flood settles down to a steady stream." Mr. Emerson is right. Let a good season come, and every beekeeper in the State would bob up, proud of his business, and would be telling every one he met how much he had made (with the possible exception of his creditors).

* * *

The best colony in my yard this season was a golden Italian. The second best, that of an impurely mated daughter of this golden. I have had goldens that were not worth introducing, that were apparently bred for color alone. But this one I purchased from an eastern dealer who advertised his queen for business as well as color. I purchased three for a tryout. One was a complete failure; one fair, and the other was the one just spoken of above. I am partial to the goldens, and see no reason why there could not be a strain bred from select stock that would be the equal of any strain, race, or color. Possibly one reason why they are liked so well by some beekeepers is because they look so much like gold that they look well during poor seasons when gold is scarce.

* * *

In a letter just received from Mr. M. J. Meeker he says: "I am surprised to see your quotation from Mr. Bixby's letter, p. 404, June 15. I think in fairness you should have made two other quotations." As Mr. Meeker has not given the quotations in full in his letter, and as he has the copy of Mr. Bixby's letter, I will give the quotations from memory as nearly as I can:

"This is no job for a tyro. I have been fooled myself. Also, I lost three-fourths of one yard from black brood when it struck this locality in an epidemic form in April."

I had intended no offense to Mr. Meeker, and I think those who care to read the matter in question will feel that I have not been unfair. I felt somewhat elated to know that there was a possibility that we were not so close to the disease as had been reported; and while I think Mr. Meeker is

doing excellent work as an inspector for the experience he had had up to the time he assumed the office of inspector, I feel that Mr. Bixby is one of the very best authorities in the State on black brood, so far as my knowledge goes.

* * *

In a late issue I mentioned having cured a case of paralysis by transferring the colony to a clean hive on clean combs (empty) and foundation. I also mentioned the fact of having another badly affected colony with which I was experimenting. I let it alone until there were scarcely bees enough to cover four frames, and then treated them the same as the first ones, but to no avail. They continued to dwindle until I was obliged to supply them with hatching brood to keep them going, meantime giving them another queen. The disease ceased after the original bees were apparently all dead; but my cure for the first colony proved of much less value than I was led to believe by their rapid recovery. Many beekeepers claim that this disease is worse where pure stock from breeders is introduced; but of these two, one was a pure-bred queen from a California breeder, and the other a native queen decidedly hybrid.

* * *

In the June 1st issue I spoke of our foul-brood bill having passed the legislature, which was correct; but it did not pass with our Governor, so we have been defeated after victory was in sight, and must now make the best of the law we have until we can do better. Many of our beekeepers will be sorely disappointed in having this bill defeated, and will blame the Governor for its failure. The blame doubtless would be correctly placed; but there are some reasons for its failure which can be traced to the legislature.

Early in the session just closed, the Governor gave the legislature warning that the formation of new commissions would not be looked upon with favor by him; further, that appropriations must not exceed the revenues available without extra taxation. The legislature passed several bills of the kind, among which was our bill, which, unfortunately for us, created a new commission in direct opposition to the warning. We, of course, did not know what the attitude of the Governor would be when the bill was drafted and presented to the State convention, and I suppose those who had the matter in charge at Sacramento did not

Continued on page 485.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

There is an active demand for bulk comb honey in the Texas markets, while the demand for extracted honey is "on the bum," as a number of extracted-honey producers have recently expressed themselves. There was a movement on foot several years ago, by several extracted-honey producers, to induce more beekeepers to produce extracted honey instead of comb honey, and then educate the people to the use of extracted honey. I did not favor this, and, instead, went into exclusive bulk-comb-honey production. I made no mistake, since the market demands an enormous amount of bulk comb honey over extracted honey, and that at a good price as compared with extracted-honey prices.

A beekeeping friend told me that he would just as readily have extracted honey of the same source as comb honey, on his own table, although we had to produce comb honey for the most of our customers. I do not agree with him, for I prefer comb honey to extracted honey from the same source, not because I like the comb or even the appearance of it, but because the honey itself tastes differently from that which has gone through an extractor. Honey just removed from the comb with the knife, and immediately eaten with your hot biscuit or bread, has all its delicate flavor and aroma, which makes it a delicate morsel. Take the same kind of honey, extracted with the machine, and it is not the same delicately flavored article. The agitation, and stirring effect upon the honey that has been "through the mill" is responsible for the loss of that delicacy and newness of flavor and aroma of our fine-flavored honeys. A certain change takes place; and a little experiment, that of taking a spoon and rapidly churning some of the fine-flavored liquid honey, will result in quite a different-tasting article.

* * *

HOME-MADE OR MANUFACTURED HIVES.

Every little while somebody asks whether it is not better and cheaper to make one's own hives and supplies. It may be a little cheaper to do so considered from the standpoint of the first investment; but aside from that I find no advantage—quite to the contrary. Especially is this so here in the South, where, first, we have not the suitable lumber for hive-making at a reasonable price; and, second, hives made with the lumber we have do not stand up properly. Therefore home-made hives are either too expensive on the one hand or too unsatisfactory on the other. My own experience

has taught me this, as I thought at one time I could make cheap and serviceable hives of my own. I have seen hundreds of home-made hives; and while they serve their purpose in a way, it is very disagreeable beekeeping indeed that goes with such hives.

The main trouble is that such hives warp, twist, or turn out of shape in all sorts of ways, even if they are made ever so carefully and expensively. All kinds of trouble confront the beekeeper at one time or another with these "leaky" hives, which let either the weather and rain or robber bees in, *but do not keep the inmates in*, just at times when this is most necessary. Besides, the apiaries composed of home-made hives never look so neat (except in the case of the very few exceptionally carefully home-made hives, which, however, are very much in the minority).

If any thing must be home-made, the bottom-boards and covers can be made well enough. But the hives and supers, and especially the inside fixtures, are better bought, and every thing will fit so well that rapid and more agreeable manipulations year after year will be worth enough more to pay the little difference between poor home-made hives at the best, and good hives purchased from a responsible factory. Bad indeed are hives and frames that do not fit exactly.

Continued from page 484.

feel at liberty to hash it up until it had no resemblance to the bill as sanctioned by the State convention. There were about one thousand bills which passed the legislature; and if press dispatches are correct, less than half of them were signed. Those passed carried appropriations nearly double the amount available from normal taxation, so the responsibility fell on the Governor, who had to trim them until they would fit the State treasury. We are not the only disappointed bunch. There was one bill affecting this county to the extent of \$85,000 that met the veto. I regret the loss of our bill as much as any one, for I think it was just what we wanted; yet I do not feel that, under the circumstances, the Governor should be blamed altogether.

My bees are very strong, and the swarming I had been able to control for several years has "broke loose," and they swarm in large, massive clusters, mostly after 4 o'clock. Well, I thought I had them, but I have another guess coming.

Bradshaw, Neb.

C. B. PALMER.

Conversations with Doolittle

At Borodino, New York.

KEEPING COMBS THROUGH THE SUMMER.

"How can one keep surplus combs during the summer months? I have no trouble in keeping them up to July; but from then on to the middle of September, or when the weather turns cold for fall, I am troubled with the larvæ of the wax-moth getting into them and often ruining a part or all of those which are not held by the bees."

"The keeping of combs through the whole year, at any time when there are not bees enough to occupy them, from winter's loss, sale of bees, or any other cause, is something which sooner or later confronts every apiarist. Half a century ago our fathers melted up all combs for the wax they contained if they had not bees enough to give sufficient swarms so that they might be hived in them; these fathers knowing full well that the hives containing such combs would hold only a mass of cocoons and webs in the fall if they tried to keep them over.

"Four decades ago some one found that combs could be kept indefinitely by subjecting them to the fumes of burning sulphur, of sufficient strength to kill the wax-moth and its eggs, provided the combs were then kept in a moth-proof room or repository.

"A little later it was found that, if the combs were exposed to the air and light, each comb being separated from the next by two or three inches, all those not having pollen in them could usually be kept perfect throughout the summer months without further attention. By giving those having pollen in them to the bees, little loss ever occurred where the room in which they were stored had plenty of windows to furnish air and light. Where the combs contained honey, it was necessary to use screens at these windows in order to keep the bees from carrying this honey off.

"Then some sharp-eyed and keen-scented person, given to close observation and experimenting, discovered that any comb which was subjected to cold from fifteen to twenty degrees below zero would be free from the ravages of the moth forever afterward, provided it was stored in a moth-proof place. Such a degree of cold killed even the eggs which might have been laid during the warm days of late fall. Thus, step by step, knowledge was gained, until at the present time no well-to-do apiarist thinks of melting up combs for the wax they contain, with no other reason for doing so than the fear of their being destroy-

ed by the larvæ of the wax-moth, if he has a room that can be sufficiently ventilated so that the temperature may fall below zero on some winter night.

"When I began out-apiary work I found that a room was not necessary for this purpose; for after a trial of several years I concluded that the very best place to preserve empty combs was in the hives. But I think I hear my questioner saying, 'Do not the moth-worms destroy the combs in hot weather when they are left in the hive out of doors?' No, not if the hives containing them are piled up in such a way that the moths can not get into these hives after the combs have been subjected to cold of sufficient amount to kill all life in the eggs or larvæ. The combs must, however, be wintered out of doors, or where they will freeze. As we have plenty of zero weather in this locality every winter I have said 'zero;' for I have not experimented with a warmer temperature. It is possible that less severe cold would kill the eggs. Perhaps some of the friends further south can give their experience in this matter. Of course, the reason the worms do not destroy such combs when treated as indicated is simply because the eggs that produce them have been destroyed by the freezing during the winter. This plan of preserving empty combs will not work, of course, except in latitudes where freezings are sufficiently severe to destroy the vitality of all that pertains to the bee-moth.

"When the extracting is done for the season, the combs can be put back in the supers, and these set under the brood-nest so that the bees may remove the honey which may remain in them. It will not be necessary to disturb them again until the bees are prepared for winter. These supers of empty combs are now piled up out of doors to freeze during the winter, and there they remain till wanted again, whether the next season or ten years later. Hives of reserved combs of honey are piled up in the same way, and I have never found any worms in or among such combs when thus treated, even where the combs are packed in as closely as the hives will hold. I think it best, however, to remove one or two combs from each hive, and then place the others at about an equal distance apart. In this way surplus combs can be kept the year round, thus saving the labor of carrying them in and out, also the expense of providing extra room for them, and they remain bright and free from mold when in hives properly made."

General Correspondence

BEES AND THE RAINBOW—A COLOR STUDY

A Reply to John H. Lovell on Page 60, Jan. 15

BY ARTHUR C. MILLER

I know that I am quite likely to have a Lovely time, but I like 'em. I am a most peaceable man, and dearly love a "scrap." There is only one thing finer than a Donnybrook Fair, and that is another one. If you never attended one it is high time you did. You will get a jolly good broken head.

Well, my coat is off. Are you ready, boys? Go! "Why do bees dislike black?" They don't! No, sir; they don't! Did you get that?

Who said they did? Well, Lovell said that Crane said that it was "the almost universal opinion." I knew it, I knew it!—just plain hearsay evidence—the kind they hanged witches on. And here are some of the hearsay proofs: "Twelve chickens running in a bee-yard; seven black ones are stung to death while the five light ones escaped." Do you know where the light ones came from? I'll tell you. Their feathers turned white from fright and saved their lives.

"A dog with a black rump is badly stung on that part." Sure, why not? The bees were after that wagging tail. "Never strike at a bee."

A white dog and a black dog ran among the bees. The white one did not attract much attention, while the black one was furiously stung. Please, how many stings are embraced in that "much?" To have that proof good for any thing, the dogs must swap either skins or dispositions.

Then there is cited a black hat "literally decorated with stings." Humph! Probably out of style, and the lady bees resented such a thing in their midst. A black hatpin caught it. Probably longer than the law allowed. Black stockings peppered. Men's or women's? Whole or darned? Those points should be specified, for they have a bearing on the pepper.

So much for your whacks. Now take these:

Bees like black. They just revel in it. They get so tired of sailing on the waves of light in their search for grub that they rejoice to get into the black where there are no waves. We enjoy sailing on the bright blue waves ourselves; but the bees find too much of them depressing. Now, red they rather like. "Red in moderation is a warm and stimulating color, but in excess it becomes an irritant." I've heard it said of "wine when it is red," and all you beekeep-

ers know how fond the bees are of fermented drinks. Obviously, after a surfeit of the "reds" black is most soothing. But look out for their tempers "the morning after the night before."

"Way down East" the bees voice no antipathy to black winter cases. Being inside of them in the winter, naturally they do not.

"A black surface in bright sunshine is several degrees warmer than a white one. This additional heat may also exert some influence in attracting the attention of the bees, though it is doubtful." Do you hear that, E. R.? Just reread it. It has only a little to do with the bees' consideration of black, but a whole lot to do with good wintering, as I've told you a lot of times. We are not talking on wintering, so you are not to mention it in your footnote; only just remember "I told you so."

Down in this locality we have our telescope covers black—a real pretty dead black, both *summer* and *winter*, and sitting right out in the sun too, which is the exact opposite of what all the Solons of beedom say should be, and that is why I did it. Oh! they are a success, and the bees fairly love those black boxes. On their return from an early morning scramble in the cold dew-covered blossoms you will find them warming their chilled toes on those nice warm black covers. As I said before, bees just dote on black. But they dislike brown and blue and white and red and a whole lot more colors. Oh, yes! it is so, and I'll prove it.

My friend 'iggins (his real name is Higgins, but he is English, and his *haitches* bother him, so he drops them), well, as I was saying, 'iggins has a real nice soft brown felt hat—one of those mellow woodsy browns at the start, and more mellowed by the wind and the sun till it so resembles brown leaves that, when he throws it down in a corner of the beeyard, 'tis hard to see—at least for him, and he is always looking for "that bloomin' 'at," for he keeps it anywhere but on his head when in the beeyard. That hat is so full of stings that he had to sandpaper the points from the inside in order to wear it.

If you will come on here I'll get 'iggins to let you try his precious hat for a few minutes. Two or three minutes will be quite long enough to suit you.

Pat, the friendly helper at one of the yards, usually wears a black shirt and a pair of old blue overalls. Pat is a pretty good beekeeper, and the bees are kind to Pat. A bright small boy on the place was

interested in the bees, so he donned overalls and jumper of the same blue material as Pat's overalls, but brand-new. Also he had on a good wire bee-veil, and tucked his hands deep into his pockets. Pat and I were busy when the small boy sailed in joyously, telling of his outfit. Very shortly there was a wail as of fear, and, turning quickly, a sight met my eyes that frightened me, seasoned veteran that I am. Those blue garments were almost hidden under a seething, hissing mass of stinging bees. Literally thousands of them fastened by their stings and thousands more were coming from everywhere. Italians, hybrids, blacks, all were at it. I grabbed the boy in my arms and fled. I took him indoors and killed every single bee before I dared remove his veil or garments.

Since then I have found that bees always assail that kind of cloth when it is new. Probably the odor of the dye is the cause, for it has a strong and peculiar odor.

One old man who is very fond of bees is also fond of old-fashioned red handkerchiefs—"bandanas." He used to wear one around his neck, but the bees just loved to pepper it, and now he doesn't wear it so any more. The bees sometimes missed their aim, and he "got it in the neck," you know.

White gloves, particularly after once or twice wearing, are used by the bees for pin-cushions. Unfortunately, the stuffing in these pin-cushions is alive, and wiggles as the pins come through, and it bends the pins.

Black bees for a few hundreds or thousands of years have managed to survive without stinging each other to death despite their color. When a few Italian queens are put in an apiary of blacks or Carniolans or Banats, we do not find the Italians stinging all the black-colored bees to death. On the contrary, if we do not meddle, it is but a few years before the Italian blood has vanished. You see the bees love black.

A small apiary is located in the middle of a large apple orchard, which is kept tilled by a hundred or more hogs big and little. The apiary is surrounded by a wire hog-fence which, while it keeps the hogs from getting within two feet of any of the hives, does not keep the bees from getting out. Most of the hogs are white, and perhaps half a dozen black or spotted. The bees never molest any of the hogs, either black or white, no matter how cross the bees are with the beekeeper.

Another apiary is located beside a cow-pasture by the corner near the barway, and there, of course, the cattle congregate. Rarely does a bee bother a cow, and the black Holsteins are quite as safe as the red or

red-and-white cows. (Those bees like that shade of red.) But a pair of gray mules always make it a point to pass the apiary on the double quick.

In an apiary of about one hundred and fifty colonies in the State of New York there roams a cow—not that the beekeeper likes the cow or dotes on aroma, but the only place for his bees was the cow-pasture. The cow is a Jersey with black muzzle and black brush to her tail. It is a pet cow, a dear sweet thing to the family, but a confounded nuisance to the beekeeper, for she is forever nosing around when he is at work with the bees. The bees apparently do not know the cow exists. They will sting the beekeeper, but not the cow, not even her waving black brush. I know, because I watched. You see, the bees *like* black.

An apiary in North Carolina is owned and operated by a *black* man, not one of the chocolate-brown blacks, but a real black black. Did his bees constantly assail him? Not so I could see it. On the contrary, I got the stings. If bees emerging from a dark hive see a black object more readily than a white one, they should have attacked him rather than me, confound them!

It is a question whether the sudden change from dark to light or *vice versa* affects bees' vision at all as it does ours. Every observation suggests quite the contrary. Flashing light attracts their attention. The shiny-black hatpin head, the sudden removal of shutters from a glass hive, etc., are examples; but apparently it does not affect their vision.

In one of my bee studies I experimented with a house of white cloth. In dimension it was nine feet cube. It was all white. Even the floor was covered with white cloth. The hives were white, and I donned a white duck suit and white duck hat when at work in there. Most of the time the hives used were of the baby-nucleus type, about eight inches cube with a half-inch hole as an entrance.

Were the bees confused when they emerged from the dark interior of the hives into the brilliant white room? So far as could be seen, no. Following are a few of the interesting things observed:

The bees—workers and drones—would come out of the hives, circle once or twice without touching the cloth walls, and then shoot across the room bang into the north wall, and always above a certain level. I was puzzled until I took a position so that my eyes were on a level with the position from which the bees started, then I saw distinctly the line *over* which they were flying or attempting to fly. That line was the hazy and irregular horizon formed by trees

about a dozen rods away. Below that horizon the wall appeared a faint gray (dilute black), and above it strong white. Why they tried to go that way instead of through the brilliant east wall (morning observation) I do not attempt to explain.

The house was then covered with another layer of white cloth with a space of one inch between the layers. The bees at once ceased the attempts to go over that tree-line, for it was no longer to be seen; but they did something else. In the early morning, say from five to seven o'clock (mid-summer observations), they started for the "bright spot" where the sun was to be seen through the east walls. When the sun got more overhead they flew about freely, working on food in the center of the room and carrying it back to their hives.

The hives were placed on the floor close to the walls, entrances all pointing to the center of the room. Sometimes there was only one hive, sometimes four or five. The hives were all alike; and when four were used one was in the middle of each side of the room, yet the bees and virgin queens always found their way into their own hives. How did they do it? I am not answering that question. It is up to you.

One day when showing the work to a guest, I had to do more or less talking, and several times bees flew toward my eyes or mouth. Several times when in conversation in the apiary I have had bees fly into my mouth, and been stung on the tongue—hot sauce, I can assure you—really quite ahead of Tabasco. Why did they go for the relatively dark cavity of the mouth? Did they see the red? Or was it the wagging tongue?

In the cloth house, bees tried to go through black or dark objects, resulting in bumping their heads and making them fussy. Then they would back off, come up slower, and apparently "feel their way" up to the object. If it was a hard substance they sometimes hit it forcefully enough to stun them. If it was fuzzy like black felt they sometimes, after hitting it, would hover angrily before it.

My interpretation is this: Bees do not readily measure their distance from black objects, and in rapid flight strike them before they realize they are close to them. Irritation, of course, follows; and if the slightest hint of poison was deposited on the object, or the object has an odor or motion, the bee pitches in to "do up" the fellow that hit it.

If any object, regardless of color, gets an odor of bee-poison on it, bees will surely assail it as soon as that odor is perceptible to them. If the object is a hat or gloves or some other garment, only two courses

are open as a remedy—namely, deodorize the article or change to clean ones. The odor of bee-sting poison is quite tenacious, and not easy to obliterate.

The bee's sense of smell is much keener than its sense of sight, hence it behooves us to keep on apparel free from sting poison. Once let gloves or hat get well scented with it, and your name is 'iggins.

We all know how peevish the bees are after a storm, but how many know the cause? It is this: The bees' nerves are rasped by the colors of the rainbow. Rainbows are perfectly be(e)autiful, but the color waves make the bees so seasick that they just want to die, and you are the opportunity.

Providence, R. I.

BEES DISLIKE BLACK FURS BECAUSE THEY RESEMBLE BEARS

BY FRED J. CARTAN

I have read with considerable interest the article by John H. Lovell, "Why do Bees Dislike Black?" and while he may be correct I have often thought that the anger aroused in bees by the appearance of any black hairy animal was a survival from past ages when the ancestors of our little friends made their homes in the trees of the forest as well as under ledges, and perhaps in the ground.

During the time I have lived in Oregon I have found a good many bee-trees; and to the best of my recollection every one bore the mark of bear-claws. Some of them (old homes of bees) had been visited many times by Bruin in a vain endeavor to despoil the inmates of their stores of sweets. It is a well-known fact that bears are very fond of honey, as well as of the brood and even fully developed bees.

I have a neighbor living near one of my beeyards who, two years ago, had several stands of bees located about a mile from his home. They were found by a bear; and from the "sign," Mr. Bear had made several visits and had devoured every thing but the hives and frames. He had picked up the hives in his "arms," and carried them over a common rail fence into the brush, and no two in the same place.

Now, the black bear is a tree-climber, and is widely distributed over the earth. That the wild bees have had to fight the black bear for untold ages will not be doubted by any one at all familiar with the animal's traits. This being so, would it not account for the bee's hatred of black, and especially of a black furry animal? I am inclined to think that it is a survival, the same as their

actions under smoke and others that we are familiar with.

Corvallis, Oregon.

A BLACK HAT THAT PROVED TO BE A TARGET FOR THE BEES

BY THE BEEMAN

Three years ago I hired a man to help take off the honey. It was after the flow was over, and the bees are cross when there is no flow. We wore veil and gloves. The hum of the mad bees soon attracted my attention to his black hat. The bees were not bothering me; but the black hat about four feet from me had nearly a dozen stings, and the bees were very mad. We left the yard, and I brought out a straw hat for him. We went to the same place in the yard to work, and the bees did not bother us. A few days later he went with my brother to an outyard, and wore the black hat. He put on a veil and left off the gloves. The bees attacked him at once, and they soon found his hands. The next day his hands were swelled badly. My brother did not have his veil on; and the bees, being mad, attacked him, and then he put on a veil, and took the honey and carried it to a wagon, as the man with the black hat could not go into the yard.

I have been run out of the beeyard on account of my black hat a number of times. We wear veils only when the flow is poor; and if I stop in the yard to see how the bees are working they soon find the black hat. I will not buy another black hat while I work with bees. Sometimes I get stung while walking through the yard without stopping; and when I am going to the yard, if I have the black hat on I change it unless I forget it.

Chamberino, N. M.

A CONVENTION OF THREE

Requeening; Laying Workers

BY R. F. HOLTERMANN

One evening when visiting Mr. Hardy in New York the question came up regarding requeening apiaries. Mr. George B. Howe considered queens up to two years of age quite profitable, of course requeening whenever any showed signs of failing powers.

Messrs. Howe and Hardy considered the month of October a time when bees accept a new queen very readily. Mr. Hardy had often successfully introduced a queen at the entrance, running her in during the early cool morning, and Mr. Howe said that he

had frequently introduced queens to queenless colonies by running them in at the top of the hive in October in the early morning.

MATING OF QUEENS.

In 1908 Mr. Howe had three queens mated twice. Three days after the first mating they mated again and laid three days after the second mating. Mr. Howe had eye-witnesses to this at the time. Normally in a honey-flow queens lay three days after mating; but it is dangerous to consider a colony queenless, even if no eggs are in the hive for quite a time after a virgin queen hatches. He had known of a Carniolan queen not laying until three weeks after she emerged from the cell. Italian queens are often slow about mating and laying. If such queens were too slow, he found it best to destroy them. Virgin queens often come out several times to play in front of the hive before going out to mate. Mr. Howe said that queens would sometimes be drone-layers when they began laying, and would become normal queens afterward.

LAYING WORKERS COME FROM OVERFED

LARVAE.

A discussion took place upon the subject of laying workers. Mr. Howe's many years of experience with bees warranted him in making the following statement: "You never find laying workers in queenless colonies in the spring. Some varieties of bees are more liable to have laying workers than others. Those more liable are those which feed the larvæ more.

"If during the breeding season you kill a queen and destroy all the queen-cells after seven or eight days, then fertile workers will develop; but I never had a case of fertile workers in a colony of black bees. In a Carniolan colony, if you kill the queen and then destroy all queen-cells, after eight days laying workers will soon develop. I have seen in such a colony as many as 50 or 60 laying workers. I have quite frequently seen them back down in the cell to lay. The normal workers in a colony will feed the laying workers. The latter are plumper than ordinary workers. I find fewer laying workers among Italians, and none at all among the blacks.

"I believe that overfed larvæ, when the colony is hopelessly queenless, produce laying fertile workers. A colony having no brood when queenless can not overfeed larvæ to produce fertile workers."

The writer suggested that the reason why there are so many eggs in some cells in which laying workers laid was because, unlike the queen, the workers do not examine them before they lay in them. To this, both Mr. Hardy and Mr. Howe assented.

Brantford, Ontario, Ca.



President Collins showing a thrifty, three-year-old queen. When bees are gentle Mr. Collins never wears hat, gloves, nor veil; and where is the smoker?

SOME BEEMEN I HAVE KNOWN

Introduction to the Series

BY WESLEY FOSTER

One can not fully understand the principles of beekeeping which enter into the success of a beekeeper unless he knows something about the man mentally, morally, and physically. The man is the factor to be considered. In these little biographies I hope to give my readers a more or less accurate view of the men involved, and, by so doing, bring out to view the reasons for their success with bees. If one can see the man he can see why and how he raises good crops of honey. And then, again, one is more interested in the men than in their bees, any way. 'Tis human nature to want to know our fellows.

I can not write of these men's faults. The faults do not add to their success, and will not be mentioned.

In telling of the men I will drift into a description of their work and surroundings, which is inevitable. Psychology has declared that a man's clothes are literally a part of him, the same as his body is; and so I shall consider that I am treating of a man's personality when I tell of his apiary, auto, honey-house, smoker, or hive-tool. We are now off for a merry visit with the first one of our friends.

W. P. COLLINS, BOULDER, COLO.

In the year 1898 or 1899, upon my return home from school one evening my

father was talking bees with a stranger in the road that passed our house. This stranger had a thin bony frame, and the clothes he wore accentuated the angularity of his frame. He leaned against his bicycle and told of his beekeeping experiences in Wisconsin, from which he had come but recently—bringing fifty colonies in a car with his household goods. Father talked foul brood with him, and the peculiarities of Colorado as a bee country. This stranger with withered and freckled face, large features, and sandy hair, soon proved to be a good talker, with a brain working like chain lightning. He talked bees and socialism, telling of the initiative, referendum, and recall in Switzerland, and other phases of the socialist movement too numerous to mention. He was the first socialist I had ever met. A graduate of Wisconsin, coming out west to practice law, and bringing fifty colonies of bees with him, such was and is Mr. W. P. Collins, now president of the Colorado State Beekeepers' Association. He has increased his beekeeping interests, and still practices law on the side, and works in socialist propaganda at all times.

Mr. Collins is a fast worker, as any one will soon realize who works with him for a day. His system of work is to do the most important thing as it comes to hand. I want to tell a story that may have grown by retelling before it reached my ears. One day during honey harvest our sandy-haired friend brought in a load of honey, unhitch-



An outdoor colony in the top of a turpentine tree. Photographed by W. H. Nixon, Manning River. From V. J. Everingham.

ed, put out the team, and went to supper. During supper some one over town called him up on the phone and asked to see him on a matter of business. Mr. Collins met the appointment, and did not return until about eleven-thirty, when he thought of that load of honey still on the wagon, and that another load must be brought in on the morrow. So he began carrying in the honey. An elderly widow living close by saw dimly in the faint moonlight a figure going in and out of the honey-house. Thinking that a thief was at work she called up police headquarters. Two patrol men came down and caught the thief with the goods on, hustled him off to headquarters, waving aside his protestations as ridiculous that *he* was the *owner* himself.

An amusing and common sight to Boulder residents is that of Mr. Collins, clad in white coat, shirt, and trousers (his regular apiary togs) riding home on his bicycle with the smoker strapped to the handle-bars, puffing away as if it were the motive power. The rest of us beemen here in Boulder are so common in appearance and actions that we are unnoticed; so Bro. Collins in the people's mind is the king-bee of the vicinity. When he loads a car of honey the papers say, "W. P. Collins, the bee-wizard, is loading a car of honey," or "Collins, the beeman, reports heavy losses of bees," or "has had a good crop," etc. He is the type for the publicity man. That's the reason I am writing about him.

President Collins operates about 700 colonies of bees at Boulder, and is interested in 400 colonies more at Rifle, on the western slope, 300 miles distant. He harvested 400 cases

this season from these western-slope bees, and made but two trips to do it. That's going some, but Collins always "goes."

As a presiding officer President Collins is unexcelled. No time is wasted at the sessions of conventions when he is in the chair. He has been president of our Colorado Association for six or seven years.

Brother Collins is a great joker; and if there is any thing above socialism and bees to engross his interest it is just plain "josh." He is generous, kind-hearted, and liberal. He will not quibble over microscopical points, but is ready with wit and cutting invective when he lets himself loose on some question he deems important. There is nothing selfish in his makeup, and he is a good neighbor, loaning any thing he has

that you can use. He can beat an opponent in debate by throwing out arguments with gatling-gun speed. First the opponent becomes confused, then flees amid the cloud of smoke that engulfs his hazy mind which can not grasp nor connect the various points of the onslaught.

President Collins is an effective institute speaker on bees. He has enthusiasm, and gives life to any thing he tackles.

Boulder, Col.

COMB BUILT IN THE TOP OF A SMALL TREE

BY V. J. EVERINGHAM

The photo shows comb built in the top of a turpentine sapling by a colony of bees. There are seven well-formed combs, containing a fair amount of brood and honey, with a fairly strong colony of bees.

They were photographed a year ago last June; and, judging by the way they have built up, they must have taken up their abode there the previous summer.

We took the combs from the branch and grafted them into Hoffman frames, and so far they are doing very well.

Taree, Manning River, N. S. Wales.

FERTILIZING QUEENS AT A MATING STATION

BY DR. BRUENNICH

In the years 1870 to 1880 the beekeepers of Switzerland were troubled badly by the *crossing fever*. They thought that, by mating a black bee with a Carniolan or an Italian, the good qualities of the parents would be inherited, and they could thus be able to create a wonderful new race. This was, indeed, a very childish idea, and the fruits were not attractive. We who have since learned the law of the alternating inheritance of Mendel are not surprised that



Breeding-case for holding four glass mating-boxes.



Dr. Bruennich's glass box used as a mating-hive.

the results were so little encouraging. In the following years we learned that the black race was the best for our conditions, and we began to deplore the introduction of the foreign races; but, unfortunately, it was almost too late. The greatest part of the apiaries were mixed, and it was not easy to find some colonies which, in consequence of their isolated situation, had preserved their integrity. The question was, *how to keep pure* those colonies in the midst of all the hybrids. Success was made possible, first, by our glass mating-boxes; and, second, by our mating-stations. The latter are isolated places containing a strong pure colony with a great many drones, and far enough from other apiaries to secure pure mating. The more drones there are, especially young and vigorous ones, the greater the probability of pure mating. But as there were many beekeepers who made use of the station it was absolutely necessary to have a strict control to hinder the entrance of "gipsy" drones with the nuclei. This was made possible by the glass mating-boxes which were introduced, I believe, in 1897. I have been working eleven years



Funnel and glass box with excluder.

with the glass boxes, and I know their great advantages.

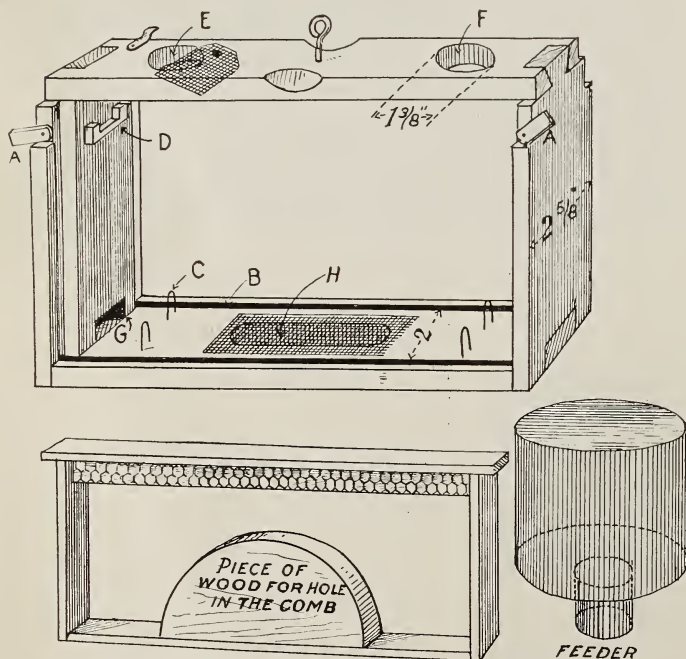
The choice of the stock for breeding must, of course, be a most careful one. I demand from a queen of which I wish descendants that she be at least three years old, her colony during those years being ahead of the

selection has to take place with the colony furnishing the drones, and the old age of the queen is here still more important.

As to the rearing of the queens I think I have nothing new to say. The matter is known well enough. The mature queen-cells are put into an incubator or into little cages

of wire in a strong colony till they come out. In the first, the temperature must be 99 degrees F., and the young queens must have at their disposition honey and water. I generally have the cells in little cages where I introduce from ten to twenty bees. Before making up the nucleus I mark each queen on the back with color. Mark a few drones first before attempting to paint a queen. With the left hand I take the queen by her wings, holding her slightly on the plate of the table, and with the right hand I give her the mark.

The illustration shows my own construction, which I have used many



A, a button for holding the glass; B, a groove for the glass; C, a staple for holding the frame; E, F, holes for feeding; G, entrance; H, hole for ventilation, corresponding to a groove in the front of the breeding-case.



Rendering wax out of doors. See page 498.

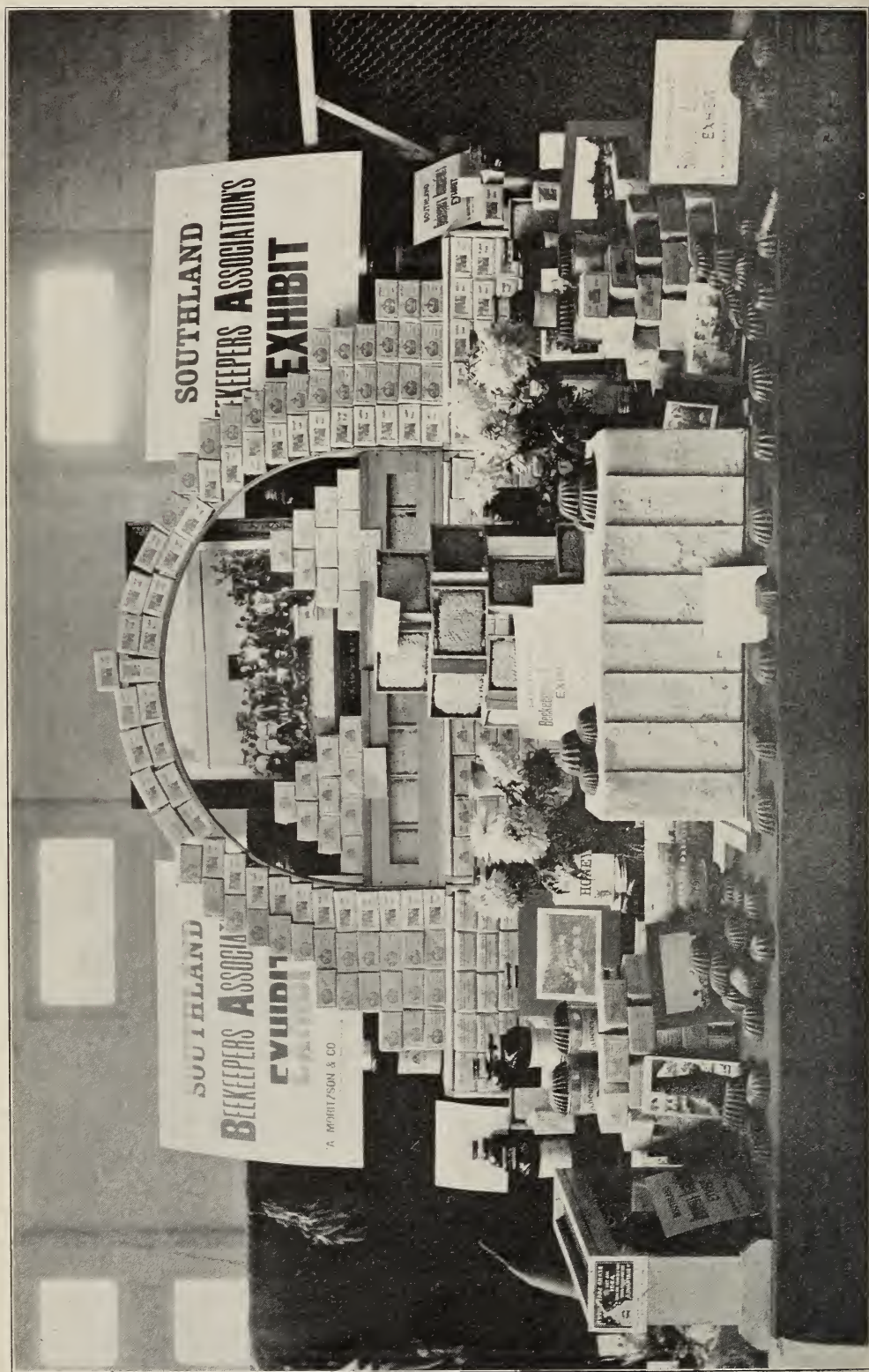
years. An important feature is the distance between the two glasses, which has to be exactly two inches. The size of the comb ought to be at least 60 square inches. The glasses may be capable of easy removal, without disturbing the bees. Four of those glass boxes are placed in a breeding-case. Two or three may be used if desired. A most important thing is to have the entrances as far as possible from each other and quite different in shape and color. On the top of the glass boxes I put a warm cushion.

In the box the frame should be provided with a little strip of foundation, and there should be about a pound of Good candy opposite to the entrance. The candy is made in an easy manner by warming, let us say, 4 lbs. of honey; and, if it is quite liquid, adding 8 lbs. of the finest powdered sugar. This should be well stirred with a wooden stick, and at last poured out on a board where there is a thin layer of sugar.

It is better if the combs for the boxes are prepared in the following manner: In a regular honey-frame put in two or three of the mating-box frames with foundation, and with a piece of wood in each, in order

to get a large opening in the comb, as shown in the illustration. This is very important, because the bees will be far more friendly to the queen, and the latter will have more chances to be promptly fecundated if the bees can form in that free room a little swarm. Give the large frames to a strong colony, and then feed syrup till the box frames are well filled with food.

The glass box being prepared, the next move is to form a droneless nucleus. I remove one of the glasses and set in its place a piece of perforated zinc. On the front I have constructed a kind of funnel into which the bees (without queen) are thrown. The bees must be young and hungry, otherwise they will remain in the funnel and not enter the perforated zinc. When there are bees enough the zinc is removed and the glass replaced. The nucleus is now caged, and the bees left alone some minutes to fill themselves. Then after giving a knock against the box we introduce the queen through the little entrance. If there are many old bees it is sometimes necessary to blow in a mouthful of tobacco smoke. Quite a sure way is to put in the queen before forming the nucleus, placing



A honey exhibit in New Zealand in which the granulated "Pats" are especially featured. See page 500.



A bunch of steers enjoying their first meal of sweet clover hay. See page 500.

her in a little tube of wire closed by candy. Four of the boxes (or two or three) are placed in the breeding-case and brought to the mating-station not earlier than the following day, in order that the bees before flying out may be accustomed to their home and to the queen. After ten days, as a rule, the fertile queen can be removed, which is extremely easy to do, and two or three days later a new queen can be introduced in a candy-cage. The great advantage of these glass boxes is the easy and quick control, without any disturbing of the nucleus. A further gain is the possibility of various observations through the glass.

In the picture I show a simple feeder which is made of a zinc box, the opening being covered with a piece of gauze.

Zug, Switzerland.

MATING-STATIONS

BY J. A. HEBERLE, B. S.

Numerous mating-stations have been started of late in Germany, Austria, and Switzerland. It is the Swiss, with their thorough organization of beekeepers, who, about fifteen years ago, started the mating-stations. Since then, every year the beekeepers who pay special attention to queen-rearing have a meeting—a breeders' conference. For two days the methods of queen-rearing are thoroughly discussed and experiences are exchanged. Lectures and dem-

onstrations make this conference very interesting and instructive.

From the first conference on, they selected with care a few of the best out of a large number of colonies for mating-stations and for queen-rearing. Eggs were sent by mail, so that many could rear queens from a colony that had distinguished itself. Only black bees (natives) were considered; but these had been crossed with Carniolans, and, to a small extent, with Italians, which increased the difficulty of pure breeding considerably. Surely much must be accomplished where so many work systematically with intelligence and patience on one problem.

These breeders were not satisfied with just rearing queens from selected colonies. They wanted these selected queens to be mated with drones from choice colonies. Mating-stations were established. Colonies were selected with special care as to characteristics and qualities to blend harmoniously with the selected queens. Colonies placed at these stations are called "droehnerich" or drone colonies. The stations are placed in as isolated places as possible. There are reports in bee literature that bees fly as far as five miles. That would imply that within a radius of ten miles no apiary and no wild bees should be found, to be certain of pure mating. Such a distance, however, is not necessary. Three miles I consider sufficient to ensure a high percentage of pure matings. If at all times a large number of drones are flying at the station, good results will be even attained at a dis-

tance of less than three miles from the nearest colonies.

The virgins to be mated are often sent a considerable distance to a station to be mated. No drones must be among the bees that accompany the virgins. Each station is in charge of a beekeeper who receives the virgins, carries them to the station, and, when mated, sends them back to the owner. Usually one or two days in the week are set apart for this, so as not to make too much work for the man in charge. By such careful breeding it can be reasonably expected that the hereditary power is greatly increased, and that a large per cent of the progeny will show the good qualities of the parents.

In 1911 Switzerland had 33 mating-stations; 417 breeders sent 3899 virgins, of which 3296 (84 per cent) were returned as fertile queens to the owners. The most successful station had 95 per cent; the least successful, 66 per cent of the virgins sent returned as fertile queens. In 1912, 41 stations were in operation, and 457 breeders sent 4013 virgins, of which 3162, or 79 per cent of them, were returned fertile. The most successful station returned 94 per cent; the least successful, 58 per cent, as fertile queens. The unusually bad weather in 1912 accounts for the greater loss of queens last year as compared with the losses of 1911.

Queen-rearing years ago, was much influenced by American methods, especially that of Mr. Doolittle, but now they have worked out a way of their own that seems satisfactory. Special attention is paid to the colony that has to rear the queens. This colony should be in the same condition as one preparing to swarm. It is claimed that then the larvæ are fed and tended with the utmost care. Dr. U. Kramer, President of the Swiss Beekeepers' Union, is also chief of the queen-rearing division. He wrote an excellent work on queen-rearing for conditions here and where quality only is looked for.

Markt Oberdorf, Bavaria.



This toad has enjoyed many a warm meal from the alighting-boards in my bee-yard. Probably his sour expression is due to the many stings he received. When I photographed him his stomach was full of bees.
Swift River, Mass.

A. E. WILLCUTT.

THE HATCH PRESS FOR WAX-RENDERING

Burlap Sacks Preferred to Square Pieces

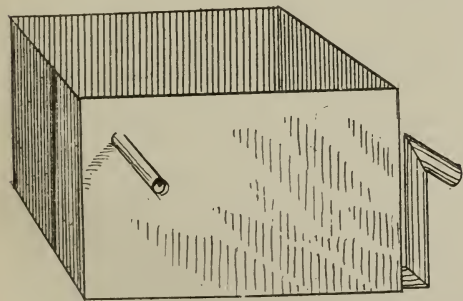
BY WM. BEUCUS

Those who, like myself, have built up from a few colonies to a number sufficient to make a living from bees have, no doubt, passed through all of the trying experiences incident to wax-rendering without suitable appliances. And these heroes and heroines will, perhaps, find it difficult to suppress groans at the recollection of the many utensils which were, one after another, pressed into service in separating wax from even a bushel of old combs. I feel sure that, as remembrance revives all the feelings of irritability attendant upon the actual process of separation and the tedious cleaning-up which necessarily followed, these tried and worthy beekeepers will breathe earnest expressions of assent when I say that, even if the number of colonies kept is only a few, investment in some kind of wax-press is advisable. The disagreeableness of the labor is not the only thing to be considered, however. The loss of temper is serious enough; but the loss of valuable time and the loss of precious bright yellow wax are still more serious. How painful it was to us, after all our pressing and squeezing, to see, here and there, in the slumgum, little streams and puddles of beautiful golden wax!

But this is all changed now. We have an outfit which enables us to secure almost

all of the wax without loss of temper, with a much smaller amount of labor, and with a feeling of satisfaction which is pleasant indeed. We have been told, over and over again, in the bee journals, to secure a wash-boiler, or perhaps two or them, in which to melt our combs over a stove, and, with a dipper, to dip up the melted combs and place them in an outspread piece of burlap in the wax-press. To us this seems all wrong. To begin with, the best place in which to work is the good old outdoors, where there is an abundance of room and where we may make as much muss as we please. Next, a wash-boiler is too small, particularly if one has 100 or more colonies. Further, dipping with a dipper is a waste of time; and, last, a square piece of burlap, which we are advised to use in the directions which accompany the Hatch wax-press, is a nuisance.

When we began using our Hatch press we blindly followed directions. The combs were dumped into the tank (4 ft. by 2 by 1), and were transferred with a dipper to the press. The loss of time, with the consequent cooling of the wax which accompanied this dipping, soon disgusted us. We then made a frame of slats; with stones we weighted it down to the bottom of the tank, and placed in each of several gunny sacks two sets of old combs. The mouths of these sacks were tied securely, and they were thrown into the tank. The advantage is obvious. With a stick we could remove one of the sacks from the boiling water and place it in the pan which had been momentarily transferred to the corner of the tank. The steaming mass could then be quickly



placed under the screw, a little hot water quickly added with a pail, and the pressure begun.

Now I must call attention to an additional appliance which I think will prove a boon to my fellow beekeepers. It is the Aiken wax-honey separator used as a wax-water separator. The one we use was made

out of a 60-lb. can. The tube to the right, shown in the drawing, comes from the bottom of the can and extends up to within about $\frac{1}{2}$ inch or a little less of the spout to the front, and carries off the excess of water. This hot water may be emptied back into the tank, thus saving the heat it contains. This separator had been used to separate honey and wax coming from the capping-melter, and for this purpose the little tubes, $\frac{1}{2}$ inch in diameter, were large enough; but for separating wax and water each should be of the same diameter as the spout of the wax-press. The reader will readily see why. If nothing but water is coming from the press it can not escape fast enough, and, as a consequence, the layer of wax rises, flows off, and is followed by water. On the other hand, if nothing but wax is entering the separator, the layer will become too thick, will harden before it can escape, and thus clog the opening.

It is our intention to improve our outfit by uniting the water overflow with the tank, thus saving more heat and the time wasted in emptying by hand.

In order to have the separator work well out of doors it is necessary to have warm weather and to work fast.

Cadott, Wis.

[When we began rendering wax from old combs we used burlap sacks to hold the refuse in the press. On the advice of a number of other beekeepers, however, we tried the square pieces of burlap; and after getting used to them we found that we preferred them, for they do not burst quite as easily as the sacks, and it is not so difficult to shake out the refuse after it has been pressed. Furthermore, a smaller receptacle may be used for melting up the combs if they are merely thrown into the water, and there is less danger of starting the pressing before every particle of comb is thoroughly melted. It is true that it takes a little longer to dip the melted comb into the press; but if a pail is used for a dipper this part of the work takes very little time indeed; and by the new plan that we have recommended for several years, of leaving the plug in the outlet of the press, the hot water and wax do not escape at once but remain in the can, thus preventing the refuse from chilling.]

One advantage of the sacks is that they may be placed under the framework, and then, before the pressing commences, a large amount of wax may be dipped off the top of the water, so that there is much less in the refuse at the time the pressing begins.

We have used the wax and water separators, but we really prefer the simpler out-

fit, consisting of a can perhaps two feet in diameter and three feet high, with a gate or faucet at the bottom, from which hot water may be drawn as it is needed. There is no danger of drawing off the wax, for it is not necessary to lower the level of the contents of the can to the danger-point. In this way the hot water does not run out all the time, but only as needed, and there are no tubes to become filled up with cold wax if one happens to forget.—Ed.]

CUTTING GRANULATED HONEY FOR MARKET

Some Further Results of the Plan as Practiced in New Zealand

BY JAMES ALLAN

[This article, by an oversight, was held over two years before being published. The subject matter is still of interest, however, for we believe there has never been as much interest shown in marketing granulated honey as at the present time. We regard our contributor's plan as being a most practical one.—Ed.]

On page 707, Nov. 15, 1909, appeared an article by me on the "pat" system of preparing extracted honey for the market. The article explains the methods adopted, and also gave the results when the honey was placed on the market. However, no notice of the system has been taken in any subsequent issue of your paper so far as I can see, and I am led to the conclusion that your readers do not recognize any value in it. Perhaps they are right; but it will not do any harm. On the contrary, it may do some good if I give another season's experience along the same line.

In 1910 (a poor season) my honey crop was 5700 lbs. of extracted honey. Of this 5000 lbs. were put up in 1/2-lb. pats and sent to an agent for sale, and in less than a week I got his sale note to let me know that it had realized 3 shillings per dozen or 6 pence per lb. Now, just a week before sending this agent my honey I was in his store and saw tons of honey in 60-lb. cans, just the same quality as mine, waiting for a buyer to come along and take it at 3 3/4 pence per lb. Now, what I claim is this: That my honey sold quicker, realized 50 per cent better value, and will reach a satisfied consumer quicker also; all because of the method of putting it up. While the difference in the cost of the packages is very small, at our prices the 60-lb. cans and shipping cases required would have cost me about \$34.00, while the cost of wrapping papers (double wrapping each 1/2 lb.), and shipping cases, was actually \$46.74. The time required to wrap and fix for market the 5000 lbs. would be about 4 1/2 days for myself and two girls.

They say the dollar is what appeals to an

American heart. I don't know but it should surely make an American look into the business when I say that the result of the pat system was to give me \$200, or, in our money, £40 more for 5000 lbs. of honey than I otherwise would have received.

I enclose with this a photo of an exhibit we sent to a local winter show. In it the pats have a prominent place. The center block is 100 lbs., and shows the tin slides. Each of the divisions, when cut, gives 25 1/2-lb. pats. Quite a number of others are adopting this method here, and we think it has a future before it.

Wyndham, Southland, N. Z., June 23, '10.

CATTLE AND HORSES LIKE SWEET CLOVER THE FIRST TIME THEY SEE IT

BY HARRY D. HOWLAND

The engraving shows our steers eating their first feed of sweet-clover hay. It is difficult to see in the picture what they were eating; and as it was thrown in on top of cornstalks, which are light-colored, they show up better than the hay.

During the fall they ran on an oats stubble with red clover in it, and a strip of about one acre of sweet clover. We could not see but that they fed as much on the sweet clover as on the red in proportion to the amount; but as it grew up taller and coarser than the red they did not feed it down as short.

We fed some of the hay to our horses last fall, and thought that they liked it better than timothy. Some of these horses I know had never eaten sweet clover of any kind; for until just recently we have been particular not to let it grow on our farm, as we did not know its value, and considered it a nuisance.

Last spring we mixed sweet and red clover seed together, and sowed a narrow strip of the oat-field with it. On the lower ground the sweet clover made a luxuriant growth after the oats were cut; but the red clover didn't make as much growth as where there was no sweet clover with it. On the high ground in this strip the sweet clover made a growth of only a few inches, while the red grew a little taller. Upon testing the soil we found that there was very little or no acid in the low ground, while the high ground showed much acidity. From this experience we conclude that sweet clover requires more lime in the soil than red clover. We are covering a 30-acre field with two tons of ground limestone per acre on which we will sow an early variety of oats and sweet clover this spring.

Gardner, Ill., Feb. 22.

SIFTING TO FIND THE QUEEN

A Quicker and More Convenient Method

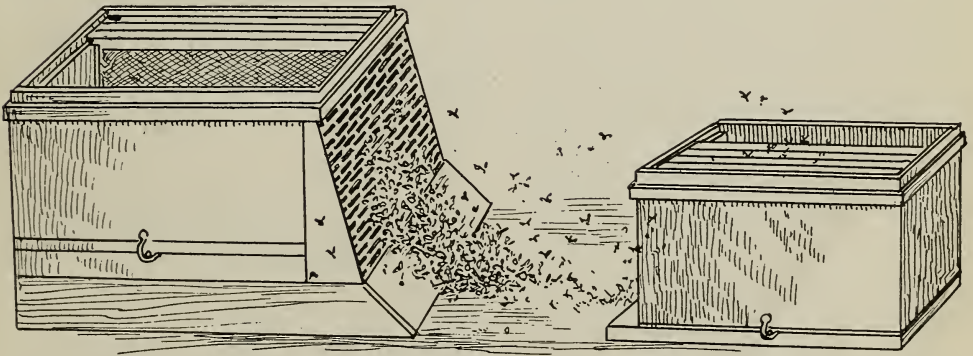
BY G. C. GREINER

Since Mr. Keep wishes to know a little more about finding the queen by the sifting process, page 703, Nov. 1, 1912, I will give some data from my 1911 foul-brood campaign, from which Mr. K. may draw his own conclusions. But by way of preface I will say that the beekeeper with some experience, who keeps Italian bees and uses loose-hanging frames, very seldom if ever needs to resort to any queen-finding device. The reader may wonder what a loose-hanging frame has to do with finding the queen. A great deal, as I will explain later on.

The device described by Mr. B. Keep, on the above-mentioned page, may give the desired result with the Hoffman or any other self-spaced frame; but it will not work so well with the loose-hanging frame. One serious objection to his *modus operandi* makes itself apparent at first sight.

application originated with the writer, is simply a square piece of excluding zinc of proper size, with a little wing made of $\frac{1}{2}$ -inch lumber, on each side, to fit against the hive, and about half way down the stand. A little screw or nail on each lower corner, partly driven in, keeps it in place. It can be adjusted or detached in less than a minute. Its essential points are, first, large size to keep from clogging up; second, slanting position to assist bees in getting solid foothold; third, the hive with the attached sieve should be placed on the old accustomed stand, that the homecoming bees and those that take wing when the combs are being shaken may readily find their home.

When the queen is wanted, her hive is moved in front of the old stand, and the empty one set in its place. We then remove the outside comb on the opposite side, and with a shake or two and a brush or two all bees, even to the last one, are dropped close to the alighting-board of the old stand, after which the comb is placed also



His combs have to be shaken and brushed clear from bees (and queen) inside of the hive or on top of the frames, and this is one very unpleasant feature of Mr. K.'s plan, as all beekeepers who have had any experience in this particular work can testify. If it is done in the hive, bees are liable to be jammed or the queen injured; or if done on top of the frames, bees may fly over the edge of the hive, and who knows that the queen is not among them? Then the transferring of combs from the upper to the lower hive is not any too handy, although it can be done, if there is no alternative; but there is a better and quicker way.

I would now call Mr. K.'s attention to the accompanying drawing. It is just such a scene as I have caused and witnessed repeatedly during my foul-brood operations. This device, which I call "Greiner's queen-sieve" because the particular way of its

on the opposite side of the empty hive. The same operation is repeated with all the combs; and when the old hive is stripped of its contents the new one has the combs in the same rotation they were before. In the mean time bees have begun to travel toward their accustomed home, and, in company with home-coming bees, are sifting through the excluder, where, sooner or later, the queen may be found.

Comparing this operation with Mr. K.'s plan I venture to say that it can be done in half the time. There is nothing to hinder the free handling of combs; shaking and brushing can be done in a hurry, transferring combs from one place to the other is the handiest imaginable, and the finding of the queen in open daylight much easier than to look for one in a bee-covered hive.

But there is another point that tallies on my side. While Mr. K. has to shake, brush,

and transfer every comb in the hive before he can begin to look for the queen, by my method I seldom have to go to that trouble. If the operator will keep his eyes on the bees on the ground, the chances are three out of four that he will see the queen drop when shaking off one or the other of the combs, frequently one of the middle ones. This accomplishes the object. He can pick her up, cage her, or dispose of her as circumstances may dictate. The rest of the combs, of course, need not be shaken off—simply transferred with the adhering bees from one hive to the other. It is needless to say that the excluder is removed as soon as the queen is found. Any bees remaining in the empty hive may be dumped with the rest in front of the old stand.

As I said before, the beekeeper with some experience hardly ever needs to resort to the use of the queen-sieve. Of the 45 or 46 diseased colonies, all blacks, from which I had to take the queens, about 40 I had caught and caged at different times, before I ever attempted any shaking-off operations without the use of the queen-sieve. The other five or six baffled my skill. In spite of repeated attempts I was unable to find them; and as a last resort the accompanying scene describes my final success.

Another instance where my method proved successful was away from home. Our bee-inspector had found at a neighboring amateur beekeeper's yard four diseased colonies, and had instructed the owner that he must either introduce Italian queens or annihilate his bees. In his consternation this beekeeper came to me, saying, "Mr. Greiner, I can send for the queens, and possibly introduce them; but I can not take out the old queens. Could you not spare the time to perform that little operation for me?" Then he added, "You know I use the Hoffman frame in my hives, and it is such a terrible job to manipulate them. I actually can not do it."

What could I do but promise?

A few days later, taking out (or, better, trying to take out) those four queens formed part of my day's program. I had no queen-sieve to fit his hives; but as I had been reasonably successful with my own bees I trusted to luck and proceeded without that commodity. The first hive I opened was comparatively new. Follower and frames were easily taken out, and I was fortunate enough to find the queen on one of the first combs. But not so with the other three. They were so stuck up and glued together that it seemed next to impossible to dissect them. When I finally did gain access to the combs the continued prying and jarring had aroused the bees

to such a state of nervousness that finding a queen was all out of the question. I left them that day.

The next day found me again at the same place; but this time my operating outfit included a properly constructed queen-sieve of the Greiner pattern. Although I opened the hives with the utmost care, and handled the combs with practically no jarring, I could not find the queen of any of the three hives. Necessity compelled me to use the sifter, which did the business to perfection. I picked one from the ground. The other I took from the excluder just after she had passed on to it, and the third one I never found. But as that colony accepted their new queen without any trouble she was probably killed or lost during the operation.

It will be noticed that the manipulation as described above reverses the position of the combs—that is, the fronts become backs, and the backs fronts. I have never noticed any detrimental result from the change; but if the operator feels anxious to retain their original position, the old hive, when removed, should not be changed end for end. The object of facing the hive toward the old stand is to assist the emerging bees, and there are always more or less investigating the disturbance in finding the old location.

La Salle, N. Y.

Beekeeping Talks at the New York State College of Agriculture at Cornell

Six years ago the New York State College of Agriculture at Cornell instituted what is known as "Farmer's Week." The number of visitors is yearly increasing, over 2500 having registered last year. The college realizes that beekeeping is a fascinating subject to many people, and that bees are of vital importance to the farmer and fruit-grower. Therefore the management last year looked about for a capable man to present the subject of scientific beekeeping to the farmers who gather here for Farmer's Week. They were fortunate enough to secure Mr. S. D. House, of Camillus, N. Y., who is known by the readers of GLEANINGS to have a most enviable reputation as a producer of fancy comb honey. He gave several lectures on hives, manipulation, and the diseases of bees.

It was my good fortune to be able to attend a part of these meetings, and I assure you they were far from dull. Mr. House is an interesting speaker, and has the power of imparting to his audience something of the enthusiasm which is manifest in his every word and action.

Ithaca, N. Y.

WENDELL T. CARD.

How to Get the Greatest Yield of Honey from Sweet Clover

Just before sweet clover blooms, mow all on your own farm for hay and let the bees forage on your neighbors. Then when your neighbors' clover has gone to seed, yours will have grown up again and will yield nectar until freezing weather comes.

Canon City, Col.

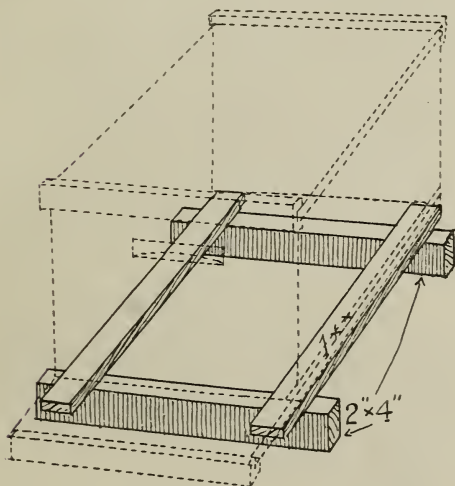
W. G. WRIGHT.

Heads of Grain from Different Fields

Another Hive-stand Suggestion

"Of the making of hive-stands there is no end." The quotation is not strictly correct, but it suits the case. And yet, after all, there is a want of hive-stands, judging by the makeshifts so commonly to be seen. As bees take to hollow trees, wall spaces in badly kept buildings, and any place regardless of appearance, the opinion seems to be general that any old thing is good enough for bees. The bee-keeper betrays his careless methods by the appearance of his hives and their supports. The conditions are often distressing to see. All will agree that convenience in handling and easy access to all sides of the hive are prime requirements for a good hive-stand.

Cheapness should come next. Having cheapness easily within reach, permanence is not so important. Then the simpler the construction and the cheaper, and the less material used, the nearer one comes to an ideal stand, having regard for efficiency.



The stand which I use and will now describe is the result of circumstances. Having a lot of odds and ends of 2 x 4's from repairing grape-arbors and trellis work, it occurred to me to use some for a temporary hive-stand which was needed on short notice. The thing answered the purpose so well, it is so simple, and so easily made from material which otherwise would be wasted, and is so durable that I have since used no other.

Cut two pieces of 2 x 4 or 3 x 4, each 20 inches long; also cut two pieces of 1x2, or any width available, each also 20 inches long. Lay the 2 x 4's on the bench or floor, on edge, 16 in. apart, outside to outside. Crosswise upon these lay the inch strips, also 16 in. outside to outside. Tack at each bearing with a three-inch wire nail; then make every thing square, and drive the first nails home, putting an additional nail in each bearing.

The hive is set parallel with the inch strips so that the foot can be placed partly under the hive when lifting the hive-body or supers. This stand raises the bottom-board 5 inches from the ground, which meets all conditions in this part of Jersey, where the soil is not particularly sandy nor wet. The 2 x 4 pieces may be soaked in creosote oil some time before being put under the hive. This will help to preserve the wood, and will repel ants for some time.

Bergen Co., N. J.

B. KEEP.

Finding Black or Dark Colored Queens

As I bought a lot of bees last June, mostly hybrids, I usually have poor luck in finding black queens. I ordered two dozen Italian queens to be delivered by September 1, but didn't get them until a week or ten days later. By that time the lower body or hive was well filled with honey, and I always have my colonies strong in bees. The weather then was extremely warm, and some queens were dead on their arrival. Some more died the next day, and I had them in the most suitable place I could find. Wherever the bees looked bad and lifeless I took them all out, and in their place I put young bees only. It takes me from one to three hours, as a rule, to find black queens, but not so with the Italians. I can find them on an average in from thirty minutes to an hour, usually in less time—that is, when the hives are crowded with bees.

So I figured out a plan whereby I could find them more quickly. I had to get them introduced, because it was getting so late the weather might turn cold or rainy, any time. Robbing had started too. I use a cage, but prefer working in the open.

I moved the hive into which I was going to introduce the Italian queen, to one side. In its place I set an empty hive-body with two old combs or good ones. It is a good plan to use dry combs, for the bees will not stay on them so much.

I shook all the bees in front of the empty hive, then put on an excluder, and on top of that I set the super with the combs, all except one from which the bees had been shaken. I use the cages for introducing that press into the comb. With one comb out I had room enough to put in my cage with queen. In about two days I took off the upper super. It has been my experience since that I nearly always find my dark queens. With but few bees below, the queen is easily found or else is missing. By that time the introduced queen is nearly always gnawed out, or, when released, would be accepted. I have never had a particle of trouble, and have never lost a queen by this method. Besides, it is easy, and is a much quicker method of introducing queens of the dark strain of bees.

Lake City, Minn.

EDWIN A. KRINKE.

The Control of After-swarms; First Cell Likely to Hatch on the Ninth Day from the Time the Prime Swarm Issues

On page 387, June 1, A. B. Anthony says, "We have by the 'wing-clipping method' a decided aid in the handling of primary swarms; but it is the after-swarms that not only can and do make us climb, but that sometimes beat us completely; and it would not hurt a bit if one more slat could be added to the knowledge our older veterans have given us on the handling of this problem."

I do not know that I shall be able to add the "slat" desired, but will give my method of controlling after-swarms, whether I practice the "wing-clipping method" or make increase by a modified Alexander method. In addition to my book-record I keep a record on a thin piece of board of the number, the date of casting the swarm, and when the queen is due to hatch. I count to the ninth day after the swarm issues as the day the cells are due to hatch. That is, the forenoon of the ninth day after the first swarm in an apiary issues, a young queen is quite likely to be hatched. But after the first one, the swarms may issue before the first queen-cell is capped, and so it may be a day or two or even more before a queen is hatched. My method is to look into the hive the forenoon or early in the afternoon of the ninth day; and if I find a queen-cell from which a queen has hatched I find the queen and then endeavor to cut out all remaining queen-cells, and finally put on a super of sections. Some-

times the cap on a queen-cell will close back so that it will require close observing to notice that a queen has hatched.

If, in examining a hive on the ninth day, I do not find that a queen is hatched, I place an empty hive by the side of the one examined, and put therein all the combs containing queen-cells except a frame containing but one cell. If I find a frame with but one good ripe cell I use it; but if I do not so find I remove all the cells but one good one from a frame and put this frame and all others that do not contain queen-cells back into the hive and put a follower board up against the frames. I make sure there is but one cell in the hive, as it may after-swarm, for many bees will leave the hive beside and return to this one. So far it has made no difference how many cells are in the hive at the side; there has been no after-swarming. In a day or two, or three, look; and if a queen has hatched in the hive at the side, cut out all the remaining cells and put all the frames back into the first hive and put on sections.

If it is desired to form a nucleus from some good colony, or if a queen from some good colony is wanted for any purpose, here is an opportunity. If it is desired to save a queen or so from some good colony the separation had better be made a day sooner, as the first queen may hatch and destroy all remaining cells. While cutting out queen-cells, sometimes one or more queens will hatch; and if they are from good stock cage them and take to some of poorer stock; or if there are none such, to some others that are due to hatch or will be in a day or so; and first gently puff in at the entrance a little smoke and then let the queen go in and then puff in a little more smoke. By this method newly hatched queens are quite likely to be accepted. Then in half an hour or so, or when convenient, look into these hives and find the queen; and if she has been accepted, cut out all cells and put on sections.

If the weather has been unfavorable for swarming for a day or so, and then swarms issue, it might be well to examine on the eighth day, or even earlier. In the management of bees there are so many things modified by conditions that such conditions should always be considered. Do not think that I always succeed in finding all queen-cells, for sometimes some are missed, and so an after-swarm sometimes issues. When such occurs I take my small light living-box on a light pole, and, often standing on the ground, or sometimes on a light ladder arranged as an easel, I reach the box up against the cluster and jar them from the limb; and when they enter the box I carry them to the hive from which they came and lay the box in front until I cut out the overlooked cell, and then pour and shake the bees from the box and they enter the hive. By this method I seldom have to do any climbing; and if I do, it is but little, as with my light living-box and light pole I can reach quite a distance. This method for me is quite satisfactory.

Huntington, Ind.

J. W. SOUTHWOOD.

Sending Bees in Car Lots; Importance of Water

I sold a car of bees to D. B. Husperger and Chas. D. Case at Ordway, Colo., and will send you their letters, and should like to have your comment on them and the shipment, and state how well or ill we succeeded.

Fisher, Ark., June 18.

S. J. ALEXANDER.

[We judge that you were fairly successful, but infer there was considerable loss of dead bees and unsealed larvæ and eggs on the way. This last loss could have been avoided if you had used water to spray the bees on the way. In GLEANINGS for June 15, 1912, page 371, you will find an article on our experience in shipping bees. You will note that we emphasize the importance of using plenty of water and spraying the bees as often as may be required. We also took the precaution to have wire cloth at top and bottom. A colony of bees or nucleus must not have too many bees in it to go through well.

Therefore, our colonies are somewhat light when they are shipped from the South to the North. A strong colony will not go any great distance in a car that way without considerable loss en route. If you ship any more bees, take the precaution to have wire cloth at top and bottom, and a barrel of water in the car, with a proper spraying-outfit, so that you can wet down the colonies along the journey, or as often as the bees require it, and they will need it, if the weather is warm, several times a day.—Ed.]

How to Introduce Virgin Queens; Best Age for Introducing

Would it be all right to introduce virgin queens to colonies of black bees right from the nursery cage without having nuclei?

Grant, Ont., June 24. JOHN MACDOUGALL, JR.

[It will be all right to introduce a virgin queen to colonies of black bees right from the nursery cages. But such virgins must not be more than a day old, and it would be very much better if they were not more than two or three hours old. A virgin queen that is three, four, five, or six days old is pretty sure to be attacked by the bees and killed. It is also advisable to let the virgins run in at the entrance; and be careful that you don't handle them with your fingers, otherwise the odor acquired from your own person is liable to be communicated to the queen, with the result that the bees will attack her. Queens should be released and allowed to run into the hives as quietly as possible.

Be sure that the black colony is absolutely queenless, and that there are no cells in the hive. The surest way is to make the black colony queenless, and then from twelve to twenty-four hours afterward let a virgin queen run in at the entrance, being careful not to cause any disturbance.—Ed.]

Putting Bees in Twin Mating Nuclei

I am anxious to get my twin boxes into operation and would like to know whether in your experience it is possible simply to take the boxes and put in a good dipper of bees along with a young virgin just hatched, omitting the move of getting little frames filled with brood in larger hives first. You understand they are, of course, all nicely drawn out from last season's work.

H. HARLEY SELWYN.

Kirk's Ferry, Quebec, Ca., June 13.

[The plan of filling the baby nuclei by means of a little dipper on combs adapted to those boxes is perfectly feasible, and the one that we regularly employ. Originally, it was our idea to put these little frames into the larger Langstroth frame—three of them to a frame—get them filled with brood and honey, then take them out and put them in the baby nuclei; but we find that is not necessary. We cut combs out from old standard-size combs, slip them into the baby frames, insert the frames in the hive, and then dump in about a third of a pound of bees. If the combs contain no honey, of course the bees will require to be fed.

You will find this method described in our A B C and X Y Z of Bee Culture in the edition for 1910 and again in the edition for 1913. You will also find it in GLEANINGS, Nov. 1, 1909.—Ed.]

Stopping a Case of Robbing After it is Once Started

I have found a sure remedy for prevention of robbing. Remove the bee-escape from an escape-board, and put a piece of excluding zinc over the hole. Place the colony that is being robbed on top of the escape-board, and a hive with a set of empty combs beneath. Leave the colony on the old stand. If the bees have a queen and are in normal condition I have never known this plan to fail. The robbers don't seem to dare to go through the zinc.

Brush, Colo., Feb. 7.

DANIEL DANIELSON.

Our Homes

A. I. ROOT

"Thy kingdom come; thy will be done on earth as it is done in heaven."

Our readers will recall that I have for some time past been declaring that some great "world-wide" event is just before us. We have wireless telegraphy, flying-machines, telephones, and progress and improvement everywhere; but of course the progress is not *always* on the side of righteousness; but we have God's promise that *his* "kingdom" shall ultimately prevail. When I asked the question, "What is coming next?" a good brother away off in California said *he* could tell me what the great thing was to be very soon on the world's program. He said *Jesus Christ* is coming back to earth; and I think he was right about it, and I think our business is to be on hand and on the alert and ready for "his coming."

With the above in mind you may understand how greedily I drank in the sermon I am giving below. Of course I sat close to our good pastor, as I am obliged to do with any speaker on account of my deafness; and I said "amen!" to his different points so many times that I was ashamed to say it any more; but some of the audience afterward expressed a wonder that I did not keep on with my amens.

Now, if any of you good people feel inclined to shout amen as you go over the sermon below, just put your amen on a postal card (or any thing else you like), and direct it to your old friend A. I. Root.

THE MOVEMENT IN THE MULBERRY TREES. BY REV. H. SAMUEL FRITSCH, D. D.

And let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that thou shalt bestir thyself; for then shall the Lord go out before thee, to smite the host of the Philistines.—II. SAM. 5:24.

Saul, the ill-fated king of Israel, was dead. David, by divine favor and native ability, had assumed the dead monarch's idle scepter and ascended his vacant throne. All Israel was jubilant, except for one thing—the Philistines, the uncircumcised Philistines!

When the Philistines heard that they had anointed David king over Israel, they all came up to seek David. For reasons of his own, David was not very anxious to see the Philistines, so he went down to his stronghold, leaving orders to say when they called, "Sorry, but not at home!" But the Philistines were not to be put off as easily as all that. They had an intense desire to see this David, so they prepared to sit down and wait for him. They gathered their

forces together in the valley near by, ready for battle.

In this predicament David enquired of the Lord, "Shall I go up against the Philistines? Wilt thou deliver them into mine hand?" and the oracle gave him this assuring reply, "Go up: for I will certainly deliver the Philistines into thine hand." And David went up, and smote the Philistines.

But these Philistines, though uncircumcised, were nevertheless brave men. They rallied their scattered forces, came back, and again pitched their tents in battle array.

Again, therefore, David enquired of the Lord: "Shall I go up against the Philistines? Wilt thou deliver them again into mine hand?" But this time the answer of the oracle was: "Thou shalt not go up; but circle over to that grove of mulberry trees yonder, and let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that then thou shalt bestir thyself; for then shall the Lord go out before thee, to smite the host of the Philistines."

Accordingly, David camps his men in the mulberry grove. He waits, breathlessly watching the tops of the trees. Not a branch waves, not a twig shakes, not a leaf trembles, not a sound, not a sign! And yonder is the army of the Philistines, every minute adding greater numbers, every hour becoming more formidable!

It must have been nerve-racking and discouraging for David and his men thus to wait in the strange stillness while every moment the enemy became more powerful and insolent. Sometimes earnest Christians to-day become impatient and disheartened because great evils flourish in the land like the green bay tree, while all around there seems to be a stupefying moral and religious lethargy and apathy which cares not and does nothing! How long, O Lord, how long? How long must we tamely sit by and submit to the insolence of the liquor traffic, the burning shame of the white-slave trade, the stigma of ecclesiastical controversy and competition, the cry of industrial oppression, the stench of political corruption, the wicked waste of war? Will the kingdom never come?

It is my purpose in this sermon to call your attention to certain movements in the tops of the mulberry trees of our land and time which seem to me to be prophetic. The kingdom *is coming!* The Philistines are soon to be routed and smitten hip and thigh! I know it! I know it! I know it

by the rustle in the tops of the mulberry trees!

1. There is a rustle which sounds very much like the coming of a great *moral movement*. Take the temperance movement as an example. It is not so very long ago that to alcoholic beverages there was universally ascribed a practical food value. The German nation, for instance, has been pointing with pride at her stalwart and brainy sons, saying, "Beer!" But now the emperor dares to intimate that the stalwartness and intellectuality of the sons of the Fatherland exist, not *because* of beer but in *spite* of beer, and he warns the young men of the nation that alcohol will rob their brains of their clearness, their nerves of their steadiness, and their muscles of their vitality, and urges the members of the army and navy to join total-abstinence societies.

Until very recently wine was considered an absolute necessity at high social functions. True, for some time it has been allowed good form for a guest to refuse wine at a banquet if his host provided it; but it has not been considered permissible for a host to refuse to set up the wine if he knew his guests expected it. But now comes Secretary of State Bryan and blandly pours the grape juice, and establishes recognition for that which had not been accorded recognition before—the conscience of the host. And the significant fact is that the people of the country are applauding our new grape-juice diplomacy!

Until very recently it was believed that a man to be popular enough to be elected to high office must be a hail fellow well met, a jolly good soul who would clink the glass and drink the lager. But now things have come to such a pass that an ex-president of the United States considers it worth while to refute in libel court the charge that he drinks to excess. We rejoice in Col. Roosevelt's vindication; but of even greater consequence than the personal vindication of a prominent public character is the significance of the recent libel suit as a reflection of the public conscience and an indication of what the people now expect of their political leaders. There was a time when the rumor that a man was a drinker would have worked to his political advantage rather than damage. But the fact that such a prominent political figure as Roosevelt considered it necessary to refute the charge that he drank to excess shows to what an extent the liquor has been squeezed out of politics. It means that henceforth no man will dare to run for high office who has the slightest taint of whisky on his breath.

For many years the national prohibition of the liquor traffic has been regarded as a

consummation devoutly to be wished, but altogether too improbable and impracticable and remote a proposition to be given serious consideration. But just a few days ago there came in my mail a circular from the Anti-saloon League entitled "The Next and Final Step," the purport of which is expressed in this sentence: "We believe the time is fully ripe for the launching of a campaign for national prohibition—not by any party or parties, but by the people." The circular supports its proposition by calling attention to four facts: 1. The people are on to the real character of the traffic. "It no longer has advocates; it must depend for its existence upon partisans." 2. The nation is aroused as to the grave peril we face. "The saloon stands for the worst in political life." 3. What has already been accomplished is prophetic of what can be accomplished. 4. The opportune time is here. To quote from the circular:

"The time for a nation-wide movement to outlaw the drink traffic is auspicious. Organization is now established and in operation in all parts of the country. The forces that definitely oppose the traffic are in accord as at no time in the past. The moral, scientific, and commercial aspects of the problem are being more intelligently put before the public than hitherto. The narrow, acrimonious, and emotional appeal is giving way to a rational, determined conviction that the traffic being the source of so much evil and economic waste and the enemy of so much good has no rightful place in our modern civilization."

But I am not preaching a temperance sermon this morning. I have simply used the present status of the temperance movement to illustrate that there is something stirring in the tops of the mulberry trees which is indicative of an immediate moral reform. The same change that I have indicated in the matter of temperance may be noted in every phase of the moral problem. Cities are appointing vice commissions to study how to abolish the shame of the social vice. The government is appointing investigating committees to look into graft, corruption, bribery, and lobbying. Chambers of Commerce and Boards of Trade are studying how to cure strikes, riots, boycotts, industrial and economic oppression. Is the kingdom coming? Of course it is coming! You can tell it by the moral movements in the tops of the mulberry trees!

2. There is a rustle in the tops of the mulberry trees which sounds very much like the coming of a great *ecclesiastical movement*.

The curse of Protestantism is denominationalism; but it is only within very recent years that we have begun to recognize it as a curse. There are many things about Catholicism that you and I do not like; but

let it be said to the eternal praise of the Roman Catholic half of Christendom that it stuck together; and it must be said to the eternal shame of the Protestant half that it has divided and subdivided until it has resulted in the very pulverization of the body of Christ. The United States Census recognizes over 150 denominations, among whom there are 14 different kinds of Baptists, 17 different styles of Lutherans, and 17 different brands of Methodists! Verily, denominationalism has run riot and wrought havoc!

In the history of denominationalism we may trace six distinct stages.

First, separation. Whenever a man got a new theological idea or a unique religious experience, he felt called upon to start a new denomination. It never seemed to occur to the leaders in those days that the thing to do was to stay in the mother church and bring the new idea to the church and the unique experience to its members. The whole trend was separation.

The second stage was condemnation. Each denomination said, "I am absolutely right, all the rest are unconditionally wrong." The churches actually "hated one another for the love of God." Christendom was divided into "Christian" and "Heretics," and no one was counted a good "Christian" who had not slain his "Heretic." The usual denominational consciousness expressed itself thus: "The members of my denomination are Christians, all other denominations are heretics."

The third stage was competition. Churches stood on opposite sides of the street competing in unholy rivalry for the converts of the community. This stage was aptly illustrated some summers ago in the city of Lincoln, Neb., when the congregation of the Presbyterian church sang, "Will there be any stars, any stars in my crown?" while at the same moment the Methodist church across the street was singing, "No, not one, no, not one!"

The next stage was toleration. The churches did not quarrel, but they let each other strictly alone. "You in your small corner, and I in mine"—but don't you dare get near my corner!

The next stage, in which we find ourselves at the present time, is federation. The churches are working together for the common good, shouldering together the burdens of common problems. This is not only true in communities locally, but even more so in the country at large. The Federal Council of the Churches of Christ in America includes 32 Protestant denominations, and represents a church membership of no less than 20,000,000.

What is the next step? Combination. Are there any rustlings in the tops of the ecclesiastical mulberry trees showing that combination is a near possibility and probability? There certainly are! In every great religious gathering they are discussing church union. The Episcopal church—mind you, not the Congregational church, but the Episcopal church—is making serious arrangements for a world conference on faith and order, looking toward a union of all Protestant bodies. At the general convention of the Protestant Episcopal Church in the United States of America in 1910, the following resolution was adopted:

"Whereas, There is to-day among all Christian people a growing desire for the fulfilment of our Lord's prayer that all his disciples may be one: that the world may believe that God has sent him:

Resolved, That a joint commission be appointed to bring about a conference for the consideration of questions touching faith and order, and that all Christian communions throughout the world which confess our Lord Jesus Christ as God and Savior be asked to unite with us in arranging for and conducting such a conference. The commission shall consist of seven bishops, appointed by the chairman of the House of Bishops, and seven presbyters and seven laymen, appointed by the president of the House of Deputies, and shall have power to add to this number and to fill any vacancies occurring before the next general convention."

With the Episcopalians taking the lead in such a world conference, who will dare to say that there is not a movement in the mulberry trees which betokens the coming of actual church union?

3. There is another rustle in the tops of the world's mulberry trees which sounds very much like the coming of a *universal peace movement*.

It is not so very long ago that war was regarded as a permanent and prominent factor in civilization, when the war-business was deemed the only really heroic calling, and the war-path the only path that leads to fame.

It is only a few years ago that the great German militarist, Von Moltke, wrote: "A perpetual peace is a dream, and not even a beautiful dream. War is one of the elements of order in the world established by God. The noblest virtues of man are developed therein. Without war the world would degenerate and disappear in a morass of materialism."

It is only a few years ago that another officer of the German army argued: "Deer and antelope thrive best where there are lions and tigers to kill them; civilization gets forward fastest on a powder-cart, and enduring world-wide peace would mean degeneracy and be a misfortune for the human race."

It is only a few years ago that the public mind and conscience quite generally ac-

quiesced in such sentiments as these. But the last few years have seen a decided and significant change in the public conscience regarding war.

There is less talk about the glory of war, and more recognition of the brutality of war. What glory is there in human beings created in the image of God killing each other?

There is less talk about the benefits of war, and a more serious consideration of the cost of war. The nations of Europe in time of peace have each year a war expense of \$2,000,000,000—in time of *peace*—think what the expense would be in time of actual war! Men are beginning to calculate the untold good that could be done to humanity if all this money were spent for bettering the condition of the people.

There is less talk about war as the last resort of disputing nations, and in its place there has grown up a vocabulary with such terms as "The Hague Tribunal," "The Interparliamentary Union," "The International Court of Arbitral Justice," "The Supreme Court of the World," "The World Peace Foundation," "The American Association for International Conciliation."

Yes, there is a war-movement in the tops of the mulberry trees, only it is blowing in the opposite direction from what it did in David's day. Then it blew toward war, now it blows away from war.

There are other movements besides the three that I have mentioned, more comprehensive, perhaps, such as the social movement; but these three are typical of those general tendencies of the day which show to the discerning mind that God is answering the age-old prayer of his people, "Thy kingdom come."

"And let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that thou shalt bestir thyself." "We are living, we are dwelling in a grand and awful time!" The kingdom is coming! You can tell it by the moral, ecclesiastical, national, and social movements in the tops of the mulberry trees! Movements to banish evils from the land! Movements to bring together the divided parts of Christendom! Movements to bring the blessing of world peace! Movements to make the kingdom come!

God grant that this morning as we list to the sound of the going in the tops of the mulberry trees we may take new heart and new courage, knowing that God is still working his wonders to perform, and, above all, may it be that, when we hear the strange rustling, we will all bestir ourselves!

SHALL WE OBSERVE SATURDAY OR SUNDAY?

I have been a subscriber of your bee journal for nearly a year, and have read nearly all your Bible texts. I do like to read them, and I agree with you on the most of your writing except on the fourth commandment. You say the first day is the sabbath, and the Bible tells us that the seventh day is the sabbath. The fourth commandment tells us that we should remember the sabbath day. "Six days shalt thou labor, and do all thy work; but the seventh day is the sabbath of the Lord thy God. In it thou shalt not do any work." And it tells us that the Lord blessed the sabbath day and hallowed it. Can you say any thing like that about the first day of the week, or the man-made Sunday?

Deer River, Minn., Nov. 8. H. A. GRUND.

Our older readers will remember that for forty years past I have, every little while, stopped to consider the matter which is again brought up in the above letter; and may God give me grace and wisdom while I try to explain to this good brother and a lot of other near and dear friends why it seems to me no good can be accomplished by changing our present Sunday to Saturday. I think I am pretty well posted in the matter, for my brother's wife, where she lived, was an earnest advocate of having Sunday on Saturday.

First and foremost, when it is Sunday here, on the opposite side of the world (or in opposite parts of the world) it is some other day of the week; and there are islands in the sea where the question has never been settled as to what day of the week it is. This dividing line is 180 degrees east of London, or through the islands near New Zealand; and it is literally true that next-door neighbors have Saturday on one side of the yard and the other one has Sunday at the same instant. What the day of the week is can not be settled. If you go around the world by traveling east, some other day will be Sunday than if you went around the world by going west. I think you will get my idea. Well, in view of the fact that the days of the week are whatever the people happen to decide on, what sense or science is there in thinking the world would be made better by having every thing as now established out of joint by the change proposed? I have submitted the matter in this way perhaps a dozen times since GLEANINGS was started, and no advocate of this change, so far, has ever been able to refute it. It is true one good brother did say something like this: "Mr. Root, if you and I were traveling we would both be able to decide which day was Saturday and which was Sunday." To this I agreed; but we would have to be guided even then by the customs of the people wherever we happened to stop.

I have sometimes made the suggestion to these good friends that, instead of undertaking any such change as they propose,

we should simply agree to call *Monday* the first day of the week; and it is in reality the first working day. Then every thing would be lovely. But the friend to whom I proposed this solution of the difficulty simply replied, "Because the Seventh-day people will not have it so." We are having a hard time, God knows, to preserve the sanctity of the generally accepted Christian sabbath. In view of this, is it not a little sad, to put it mildly, to think so many good people should try to weaken our forces for righteousness by something so comparatively unimportant? Just now, in this day and age of the world, good people are dropping minor differences in order that we may work together to bring about the glad time when God's kingdom shall come and his will be done on earth as it is done in heaven. United, we stand; divided, we fall.

So far as I can see, and I have examined the passages from the Bible carefully that have been pointed out to me, the Bible nowhere attempts to fix the day of the week. In fact, it could not do so. It does plainly command, however, that one day in seven shall be remembered and kept holy, leaving the people to decide for themselves what day shall be called the first day, and what day shall be generally recognized as the seventh.

REMEMBER THE SABBATH DAY, ETC.

Mr. Root.—For more than thirty years I have been interested in your writings on home topics and the moral questions of the day, and was well pleased with what you say about the sabbath in *GLEANS* for Jan. 15. I think we need to emphasize the duty of Christians to prepare for the sabbath by doing on Saturday what can reasonably be done of the work, such as chopping wood, etc., which, if left, would be necessary labor on Sunday.

THE GERMAZONE SWINDLE.

I am glad you have told us what a simple and cheap remedy germazone is (p. 785, Dec. 1). I have used it for nearly ten years, and find it a splendid remedy for roup and bowel trouble; and, when used with chloride of lime, it is good for the treatment of canker, which resembles diphtheria, and is even worse to combat than roup. The price I paid was exorbitant, yet I suppose I should have failed to get the benefit of it if my attention had not been called to it by an advertisement.

TEMPERATURE; VARIATIONS IN THE SAME LOCALITY, ETC.

I have been reading your remarks on temperature, page 70, Jan. 15. On the coldest night of the present winter, our thermometer, a minimum-registering instrument which has proved quite reliable during nearly twenty years, was at the north side of the house, but in a somewhat sheltered location, and registered 3 above zero. In and around the town of Alamagordo, about seven miles away, temperatures reported varied from 8 below to 21 below zero. The government thermometer, near town, recorded 14 below. I can readily believe *all* of these temperatures to be approximately correct, and I base the opinion on the following incident: Something like forty years ago, in Iowa, I looked at the thermometer before sunrise, and it stood at 40. On go-

ing a little beyond the stables, on a side-hill facing the west, and only about thirty rods from the house, I saw frost on the grass. I returned to the house and laid the thermometer in the grass near by, but it still remained at 40. I then took it to the side-hill and laid it down in the frosty grass, when it quickly dropped to 30. In the case of the varying temperatures at Alamagordo, the currents of air from the canyons in the mountains near by might have caused the difference.

A FEW WORDS ABOUT HAWKS, ETC.

It is pretty expensive waiting for each individual hawk to "acquire the habit" of catching chickens when one has chickens worth from one to five dollars each; and nearly all kinds will catch chickens sometimes, and song birds often. I seldom disturb harriers, though even *they* sometimes get a chicken. I have seen a pigeon hawk (or, rather, a sharp-shinned hawk, which is practically the same) pick a robin, larger than himself, from the top of a post, and easily fly with it 25 or 30 rods to a sheltered place in a grove where I soon dispatched him; but he had killed the bird. In Iowa, Harlan's hawk, a very large species, seldom troubles chickens; but in Virginia they are very destructive.

BURDETT HASSETT.

Alamagordo, N. Mex., Feb. 4.

Let me add one thing more about temperature. There may be quite a variation in a very short space of time. Years ago I was one night undecided about whether to call up the help and put the sashes on the cold-frames, etc. I was on the watch long before daylight; but when the sun was up, and no damage, I breathed easier and went to breakfast; but frost came so as to do quite a little harm in spots *after* the sun had been up a full half-hour. I hope all will "take notice" again that the germazone sold at 50 cts. a bottle is less than one cent's worth of permanganate of potash, with a little alum added. What do you think of the man (or poultry editor) who would consent to be a party to such a transaction?

A PLAINTIVE LETTER FROM A BROTHER BEE-KEEPER WHO IS "BEHIND THE IRON BARS."

The letter below came during my absence in Florida. Along with it was quite an interesting protest against our government for being a party in the liquor business. The letter was rather long, and several things our friend urged at the time have since come to pass, so we give only the closing paragraph as follows:

Mr. Root.—I beg your pardon for writing to you without an introduction; but knowing as well as I do the curse of whisky I have taken this liberty. I am, perhaps, only a convict; but if a word of mine will help to prevent any young man or girl from traveling the same road whisky has taken me, gladly will I speak that word. I had a Christian father and mother. Whisky separated me from them; a good Christian sister—whisky parted me from her. I was respected by many friends, but whisky took the respect from me, and left me—what? Why, nothing but a prison; and yet after all it may be all

for the best that I came here when I did. I am but twenty-five years old. I see where I have made mistakes, and I intend to turn those same mistakes into future profit by not making them again.

Asking your pardon for this long letter, I beg to remain yours truly until prohibition really prohibits.
Pittsburgh, Pa. A7361, N. S.

Permit me to say, dear brother, I looked over the letter above with careful scrutiny

to find some place where you recognize the importance in a crisis like this of *divine help*; and although you do not close by asking the readers of GLEANINGS to pray for you, I am going to ask our good friends to remember our unfortunate brother who is in trouble, even yet, inside of prison walls.

Poultry Department

RHODE ISLAND REDS AND MOVING THEM TO ANOTHER NEST WHEN THEY WANT TO SIT.

Mr. Root:—In the May 1st issue of GLEANINGS, page 321, I am a little surprised at the remark of your correspondent in regard to the Rhode Island Red pullets not sitting when removed from one nest to another. My flock is composed mostly of Rhode Island Reds; and out of 25 sitting hens and pullets I have been compelled to move 24, and some of them quite long distances, and not one has refused to sit. With the mixed Leghorns and Plymouth Rocks I have not been so successful.

Now in regard to my management of sitting hens. I have a sitting-room screened off with chicken wire and burlap—formerly bran and chop sacks—from one of the hen-houses, and in this room I place just as many individual nests as I have hens ready to sit. I place in each of these nests two eggs—not porcelain nor rotten eggs, but good ones. After dark I take my hens gently from their nests, one at a time, and carry them in my arm in the same position in which they were sitting, put them on the new nests, and shut them on the nests. In this room I place vessels containing water, feed, grit, and a dust-box. In the afternoon of the following day I let the hens off to eat; and when I am doing up the evening work I slip my hand under them, take out the two eggs and lay before and around them thirteen or fifteen eggs. This is done in daylight; and by the time I have finished up my other evening work around the chicken-yard, and go in to see how they are getting along, they will have all the eggs rolled under and be hovering them very contentedly.

This plan is much more simple and satisfactory than my incubator experience, for all I have to do is to see that they have plenty of feed and water, and look in two or three times a day when other duties call me to the hen-house, to see that no two hens are sitting on the same nest—a very rare occurrence, and never with the Rhode Island Reds.

There is only one drawback to this plan, and that is when the hens are set at different times, and the first sittings begin to hatch. At this time some of the other hens are liable to get excited and want to help mother the chickens when the chickens are very noisy, and sometimes it becomes necessary to remove the hatching hens; but as the nests are made single, it is very easy to pick up the nest and carefully carry it to some other building.

Fayetteville, Ark., May 26. MISS C. E. JORDAN.

My good friend, I am very glad to get the above; and that is about the way the Rhode Island sitting hens behave here in the North. But when I went over to neighbor Rood's and asked him if he had any sitting hens, he replied, "Yes, plenty of them; but I fear they will not *continue* to sit if you move them to some other nest—at least they will not with me. But perhaps they will work better with an experienced man (?) like yourself." Well, I went and

got three, off the nests, that seemed fully determined to sit; but they were all off the notion when they got over to my premises, in spite of putting boxes over the hens, nests and all. I wish to say to their credit, however, that all three raised nice broods after a laying of eggs; and, best of all, *all three* commenced laying again when the chickens were about three weeks old. Now you say, my friend, you shut them on their nests; but you do not tell exactly how, but I infer you put some sort of box over them so as to keep them in the dark, as you say further along that your nests were all made single.

GROUND MUSTARD FOR CHICKENS.

Some time last winter I saw an advertisement in one of our poultry journals of the R. T. French Co., of Rochester, N. Y. Their principal business seems to be putting up mustard for the whole wide world, chickens included. After some correspondence I ordered a barrel at 18 cts. per lb., laid down at Bradentown, Fla. When the package was unloaded from the steamer it was so badly broken that the transportation company went and got a new barrel to hold it. They told me there was quite a lot of sneezing, and wiping of eyes, before they got the "stuff" transferred. Permit me to say here that the French Co. made good all the loss of mustard, taking the task off my own hands of settling with the railroad company.

Two things prevented my giving the mustard a fair test with my flock of forty or fifty chickens. First, it was near time to go north. Second, I had been feeding them for a month or more with Conkey's "laying tonic," so they had been giving me 35 or 40 eggs from 60 laying hens. I think you will agree with me that it would be pretty hard to make an improvement under such circumstances with mustard or any thing else. Not so, however, with the Indian Runner ducks. Eighteen laying ducks had been giving fourteen or fifteen eggs nearly all winter; but about two weeks before the receipt of my mustard they had for some reason gone down to ten or eleven eggs. Within three days, possibly four,

after I began putting mustard in their mash I got 17 eggs from 18 ducks. The ground mustard was so strong that Mrs. Root put some of it on the table, and it seemed to answer every purpose of the high-priced mustard we get in little tin cans at the grocery. As the barrel of mustard was quite a spell on the way it did not reach us in time to give it a long trial before we went north. I used it in the wet mash with chicks of all ages, and they were very greedy for it, and it seemed to do them good. I did not bring any of the mustard here to Medina, because I do not get time while here to do very much with chickens.

A great many of the friends have been inquiring how much mustard should be given, say to a dozen fowls every day. Now,

I have not their directions at hand, but my impression is that we used a tablespoonful for each dozen fowls in their mash once a day. The mash we used was about equal parts of bran and middlings, sometimes adding Indian meal. The mustard is thoroughly stirred into the bran and middlings before adding water; then add just enough to make it crumbly, not wet. The amount suggested makes it taste pretty strongly of mustard; but the fowls do not seem to mind it. In fact, they will eat greedily green mustard growing in the garden when it is so pungent that even a little bit of leaf chewed up you will find about all you can stand. As the fowls seem to crave all such pungent green stuff, I am inclined to think that mustard must be good for them.

Temperance

THE CRISIS IS COMING.

Slavery was not abolished without bloodshed, and it has been frequently remarked that there will probably be bloodshed before the liquor business is in a like manner banished from our land. In the *Baltimore Evening Sun* for June 21 we note that W. H. Anderson, superintendent of the Baltimore Anti-saloon League, was assaulted in his office by Robert L. Ulman, son of a former whisky-distiller. Young Ulman commenced the assault with a "dog whip," but Anderson, who is a big man (in several ways) took the whip away from his assailant, choked him into submission (but did not strike a blow), and then let up on his promise of good behavior. The reporter asked him if he was going to nurse his right eye on the morrow. He replied, "No. I am going to preach to-morrow morning at the Mount Royal Methodist Protestant Church, and I'll take the black eye right up in the pulpit."

Here is the letter that Mr. Anderson wrote that so incensed the liquor-dealer's son. What do you think of it?

Before long, when a brewer buys an automobile, people will figure how many children were robbed of carfare to the parks before the price of the auto filtered to him in profits. When some distiller contributes to charity, or builds a church, or finances some similar enterprise, folks will begin to wonder how many men were robbed of the hope of heaven by the stuff which he sold for profit, knowing it to be injurious, to enable him to pose as a generous patron of the church. When the wife of some distiller or wholesale liquor-dealer or prominent grocer who makes a specialty of liquor blossoms out in a diamond necklace at the theater, the margins of programs may be covered with calculations of how many children and mothers have gone without decent clothes in order that she may shine resplendent. And the day is not far distant when the socially prominent wife of a man who has made his money out of the liquor-traffic, upon giving some lavish entertainment in a palatial home, will find that even

the guests will involuntarily trace the connections between that luxury and the hovels in the slums, and the pitiful sight of household goods on the sidewalk where a drunkard's family has been evicted for nonpayment of rent, and regard her as a social parasite.

The managing editor of some of the great papers said to me not long ago: "The greatest victory which the temperance folks have won to date is the creation of a public sentiment to the effect that wealth derived from liquor is not as respectable as 'clean money,' and which has put its possessors on the defensive."

Unless some people who now flatter themselves that they are of the very elect wake up to what is going on they will find that they are without standing in the aristocracy of service and the nobility of unselfishness. And if their intelligence is too dull and their conscience too sluggish to see it, it will be of service to them, as well as to the community, to awaken them with as much of a jar as is necessary.

WILLIAM H. ANDERSON,

Supt. Anti-saloon League of Maryland.

Baltimore, June 16.

FLORIDA'S RECENT VICTORY, FOR WHICH MAY GOD BE PRAISED.

I have just received notice that the good friends of temperance in Florida have succeeded in securing ten different temperance measures. Of the ten, I copy below 1, 3, 8, 10.

1. To prohibit personal solicitation for sale of liquors in dry territory.

3. To prohibit the shipment of liquors from without the State into any dry county or precinct within the State except for personal use.

8. To prohibit the shipment of liquors from wet counties within the State to any dry county or precinct within the State except for personal use.

10. To provide for seizure of all liquors shipped otherwise, or found in dry territory in quantities greater than demanded for personal use.

Perhaps I should add that 37 of the 48 counties of Florida are dry.

Perhaps I might mention that it was my privilege to lend a helping hand in securing the above. The superintendent, in closing his letter, says:

Too great praise can not be given the donors or guarantors of the legislative fund. I constantly thank God for every one of you. Our work would have been impossible without your liberality. And I know that our Father in heaven will abundantly bless you for your liberality and fidelity to his work—specifically the securing of measures moving toward the ultimate extermination of the beverage liquor traffic.

C. W. CROOKE,

Supt. Anti-saloon League of Florida.
Jacksonville, Fla., June 19.

WEST VIRGINIA AND ITS GREAT VICTORY—A
KINDLY REBUKE TO A. I. ROOT.

Brother Root:—I send you under separate cover *The Wheeling Advance*, where you will find the latest returns of the wet and dry votes of West Virginia. I felt a little sad when I saw no mention made in GLEANINGS of our great victory in West Virginia. I feel sure, dear old friend, that the good news of our State going dry would fill your soul with gladness. We must give great credit to Billy Sunday and to the good people of Ohio as well as those of adjoining States for our great victory. Our good people are now helping those of Ohio, not only to fight the saloons, but to shut down breweries and distilleries. The prayers of all our good people will do it.

Elm Grove, W. Va., Nov. 27. WM. BITZER.

My good friend, I supposed I had made mention of and publicly thanked God for the overwhelming victory in West Virginia. Your letter came here during my absence or the matter would have been attended to sooner. I am glad to know that Billy Sunday had a part in that grand work. May God send us more Billy Sundays. Since your kind letter was written, some great victories have been brought about, as you are perhaps well aware, not the least among which is the conferring on the women of Illinois the right to vote in that State just as men do. That means an addition of 1,600,000 voters, most of whom can be counted on as being against the saloon.

"OUT OF THE DARKNESS AND INTO THE LIGHT."

Dear Bro. Root:—I'm a subscriber of GLEANINGS, and have been a close reader of Our Homes—so much so that your August number has made a remarkable change in me. I've been a user of tobacco for thirty odd years, and I've been able to quit, and have no desire for it at the present time. I have improved in health, and gained fifteen pounds. Not only that, I've been also converted, and I'm now a member of the Baptist Church here. Your writings in the Home Department, and your unselfish plea for righteousness, have had a great deal to do with my spiritual welfare, and I take this means of acknowledging the same, and I hope that you and your good wife may enjoy the best of health, and God grant that the evening time of your life may be thrown out in a long twilight, and you be able to do a great deal more good for your Master yet. This is the prayer of a sinner saved by the grace of God.

Leadwood, Mo., Nov. 11. FRED WORTH.

May God be praised for what you tell us, my good friend. I trust that, when your eyes rest on this, you will have met no serious discouragement, and that you still are "holding the fort." You have probably

had your share of trials and temptations; and may be sometimes you have felt discouraged; but let me point to you a gem in God's holy word—"Great peace have they that love thy law, and nothing shall offend them." Do not be offended, my brother, no matter what turns up or comes up. Look pleasant; hold on, and the promise will surely be yours. Once more, may God speed you in the new life you have commenced to live. By the way, the above confession reminds me of the following which I extract from the *American Magazine* for October, 1912. The words are spoken by the great reformer Charles B. Towns:

"You can't talk to me about tobacco. The tobacco-user is in the wrong. It undermines his nervous strength. It blunts the edge of his mind. It gives him 'off' days when he doesn't feel up to his work. It always precedes alcoholism and drug addiction. I've never had a drug case nor an alcoholic case (excepting a few women) that didn't have a history of excessive tobacco-smoking. Inhaling tobacco is just as injurious as moderate opium-smoking, and the same treatment is used to destroy the craving. There's a plain fact that has a jolt in it for some of you smokers. I'd like to train about a million men in this country to say, 'It's tobacco!'—like that—'it's tobacco!' whenever they hear a man say he isn't feeling quite fit. A million people saying 'It's tobacco!' every day—that would get us somewhere."

ILLINOIS GIVES WOMAN SUFFRAGE.

We clip the following from the *Cleveland Plain Dealer*:

SPRINGFIELD, June 26.—Gov. Dunne to-day signed the woman suffrage bill passed by the General Assembly. The bill provides that Illinois women of legal age may vote for all statutory offices.

By his signature Gov. Dunne made Illinois the first State east of the Mississippi to give women the right of the ballot. The bill will become law on July 1.

If the men who voted against woman suffrage in Ohio and Michigan do not feel somewhat ashamed of themselves when they see the above, they certainly ought to.

LEVEL CULTURE FOR POTATOES IN FLORIDA.

Friend Root:—GLEANINGS is received, and potato article read. You know receiving this copy of GLEANINGS carried me back 30 years when I was at Sarasota keeping bees and reading GLEANINGS. Those were some of the happiest days of my life, settled in the woods a mile and a half from any house, with my bees and garden. I was then a potato-grower, and read your book on level culture for potatoes, and it was a success. Working dirt to potatoes in this country won't do. They put on small potatoes all up the stalk as far as the dirt covers it.

When I ran a fine-tooth harrow over the ground after potatoes were just through the ground it took lots of faith in A. I. Root not to feel that I had ruined my crop; but two or three days showed to me that you were right.

Bradentown, Fla., June 16. S. C. CORWIN.

I had a fine crop of honey from my back-lot apiary, and feel that much of it is due to A. I. Root. Rapid City, S. D., Dec. 21. ALICE A. FRENCH.